IDG.net

400 CIOs gather at Computerworld's Premier 100 conference PAGE 6 AND ONLINE Our Best in Class insert FOLLOWS PAGE 20

COMPUTERWORLD

THE NEWSPAPER FOR IT LEADERS ▪ WWW.COMPUTERWORLD.COM

MARCH 11, 2002 ▪ VOL. 36 ▪ NO. 11 ▪ $5/COPY

CHRIS HARTLOVE

MARRIOTT'S Dan Blanchard sped through a program in 15 months.

LESSONS IN EXECUTIVE EDUCATION

MANAGEMENT TRAINING is a critical yet all-too-often overlooked component in the development of tomorrow's leaders. Find out from business and IT executives the pros and cons of taking e-learning courses. We'll also tell you about the development of regionally accredited universities that can help transform your work experience into a degree.

Stories start on page 22.

NEWSPAPER

USERS BRACE FOR HP/COMPAQ UNION

Concerned about fate of product lines and level of service, they await promised road map

BY MATT HAMBLEN

As shareholders prepare to vote next week on what would be the largest merger in computer industry history, corporate users remain uncertain about the prospects for maintaining full protection of their technology investments.

MEGAMERGER

Users know they must acquiesce to what the financial marketplace decides, and that won't be known until after the votes by Hewlett-Packard Co. shareholders March 19 and by Compaq Computer Corp. shareholders the following day. At stake is HP's proposed $22 billion purchase of Compaq — and the direction in which a merged company would lead its users.

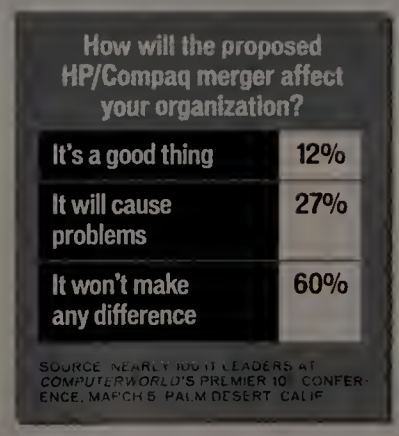
Many IT managers have expressed concern about getting continued attention from sales reps and service personnel and about what might happen to duplicate product lines, such as Unix-based servers. Users of Compaq's products have faced several years of migration worries about high-end servers that the merger only complicates.

Neither company will discuss its product plans before the merger is confirmed, and it might take days or weeks to settle a close vote, company officials and analysts said.

"We're concerned that OpenVMS and Unix will compete for engineering resources in the merged company," said Hal Kuff, manager of network systems at Tessco Technologies Inc. in Hunt Valley, Md. The wireless technology distributor has 60 servers, including 25 Alpha servers. Compaq inherited the Alpha line when it purchased Digital Equipment Corp. in 1998.

Last June, Compaq announced that it would transition Alpha processor technology to Intel's Itanium processor

HP/Compaq, page 55



VIRUS ALERTS LACK STANDARDS

Klez.E hype shows need for reporting procedure

BY DAN VERTON

The Klez.E worm, a new variant of a well-known threat, reared its ugly head last week — and fizzled.

But that didn't stop the antivirus vendor community from pelting users with a series of dire warnings and alerts that offered no consensus on the real threat. As a result, users, analysts and even executives in the antivirus industry said it's high time that a standard reporting and risk rating procedure is established.

In an open letter to the AntiVirus Information Exchange Network, Kenneth Bechtel, an antivirus specialist at Tyco Electronics/AMP Inc. in Palmyra, Pa., urged the antivirus vendor community to provide a more accurate description of their alert levels.

Virus Alerts, page 12

WIRELESS LANs GAIN OVER CELLULAR

Some users shun 3G for cheap homegrown nets

BY BOB BREWIN

Who needs 3G?

A growing number of localities have already decided to sidestep emerging third-generation cellular technology in favor of making creative use of wireless LANs.

Greg Anderson, director of IT for the city and county of Broomfield, Colo., said he plans to cut off his Cellular Digital Packet Data service from Redmond, Wash.-based AT&T Wireless Services Inc. because it's too costly and the data rates are too slow. And he said he has no intention of using the more advanced 3G cellular once he completes his industry-standard 802.11 wireless LAN, or Wi-Fi, installation countywide later this year.

Broomfield has installed eight wireless LAN access

Wireless LANs, page 12

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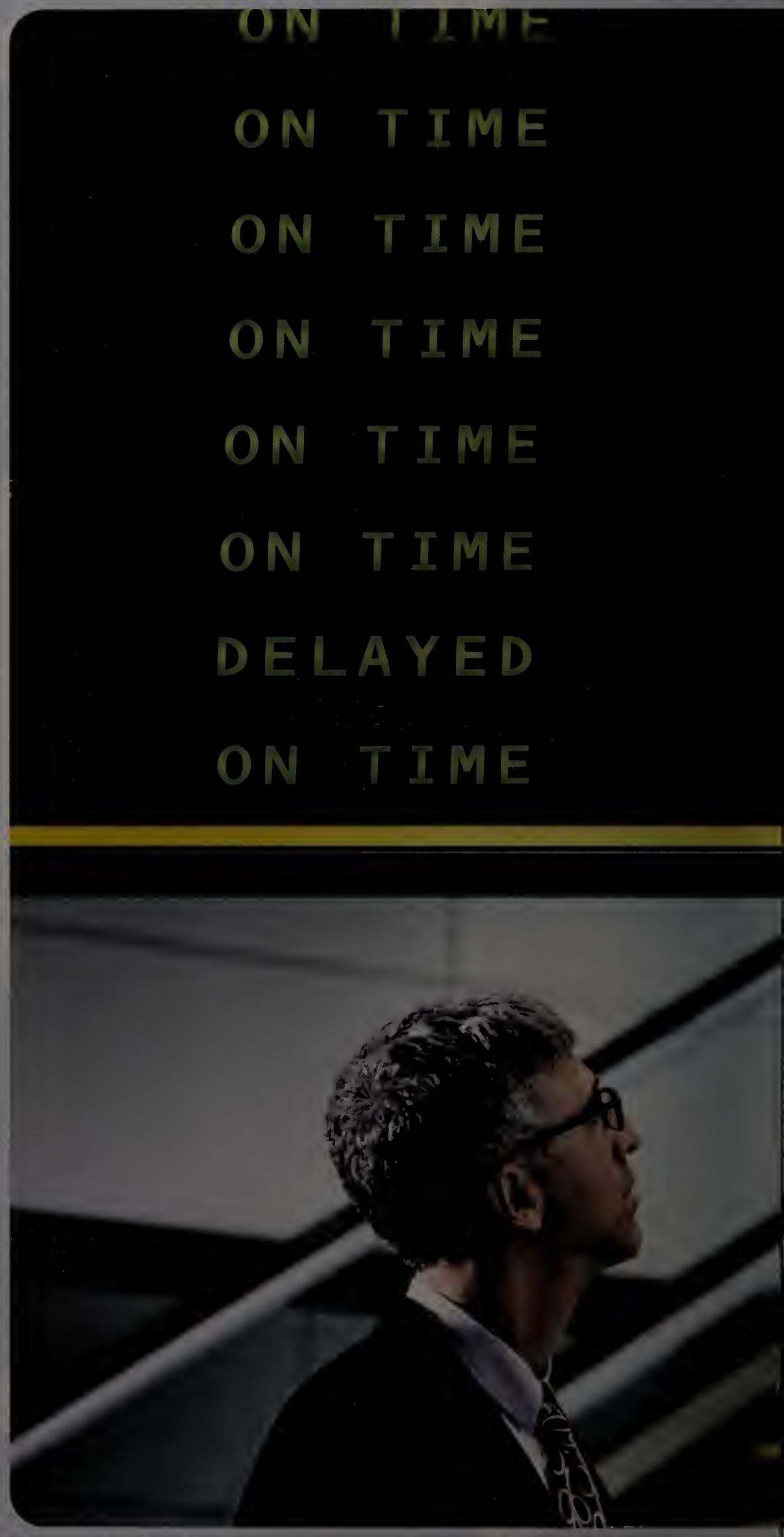

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FIGHTING THE NEXT WAR

Self-healing networks, robots (left), smart bombs, helmets fitted with computer displays and much more — this week's Future Watch tells how future wars will be fought with IT. **PAGE 40**

B2B: DAY TWO

Public electronic marketplaces have been a pain in the neck for owners and participants in terms of integrating applications, cooperating with rivals-turned-partners and creating liquidity. But they're still expected to help companies save bundles of cash. **PAGE 26**

RICHARD LILLASH

MARCH 11, 2002

COMPUTERWORLD THIS WEEK

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4 As the remedy phase of the Microsoft antitrust case begins, some opponents want API blood.

5 Nestle awards a $500 million data center deal to IBM, and shifts away from Hewlett-Packard.

6 CIOs attending *Computerworld*'s annual Premier 100 conference have ROI on the brain.

8 The U.S. Navy uses instant messaging in the war on terrorism.

9 Merrill Lynch says a multimillion-dollar project to replace its order entry software worldwide will pay for itself within three years.

10 Volvo turns to product life cycle management software to make sure its three truck units and their suppliers are in the same lane.

Quick Link: For breaking news, updated twice daily, visit *Computerworld.com*:
www.computerworld.com/q?q4000

BUSINESS 21

21 Joe Auer says IT buyers should use a "salami" strategy to negotiate with vendors: dole out information about your organization's goals a few slices at a time.

22 IT workers who want to complete their educations are taking advantage of accredited universities that offer "quick degrees."

28 Boeing is anticipating an 18-month return on its knowledge management system as a result of fewer redundant queries to its service engineers.

32 Career Adviser: Fran Quittel offers advice to a 20-year IT veteran on gaining expertise in hot technology areas.

32 Workstyles: Paul Zyla, director of information systems, and Martin Maiers, manager of bioinformatics and research systems, talk about how IT meets medicine at the National Marrow Donor Program in Minneapolis.

TECHNOLOGY 35

35 Nicholas Petreley says that most of the features touted in the .Net development environment are already available in Java.

36 Microsoft's line of Enterprise Server software now features support for its .Net development framework — but will enterprise users care?

38 A mirrored data center based on Asynchronous Transfer Mode technology has dramatically slashed one financial services firm's data recovery time.

42 QuickStudy: Checkpoint and restart, mechanisms for protecting operating systems and enterprise applications from computer failures, are the topics of this week's tutorial.

44 Security Journal: Vince Tuesday scrambles to patch thousands of network devices in response to a recently discovered SNMP vulnerability.

OPINIONS 16

16 Maryfran Johnson showers praise on notable IT projects that were agents of change at their companies (and are featured in this week's Premier 100 IT Leaders Best in Class supplement).

16 Pimm Fox says you must assess the financial risk of your entire IT operation if it's compromised by security breaches, because that's what's at stake.

17 Alex Torralbas writes about a forgotten group in the battle over UCITA legislation: the software development companies that don't have the financial and legal clout of a Microsoft or Oracle.

56 Frank Hayes lets readers have their say on many of the IT topics he has spoken out on since the start of the year.

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ONLINE

SECURITY UPDATES

For the latest news on security threats, visit our Viruses, Worms and Security Holes coverage page at **www.computerworld.com/q?a1280**

PREMIER 100 NEWS

PREMIER 100 IT LEADERS 2002

What are the keys to security success? How do top IT leaders squeeze business payback from leading-edge technology projects? Catch all the coverage of *Computerworld*'s Premier 100 conference at **www.computerworld.com/q?a1660** Read case studies on the *10 Best in Class* honorees in this week's insert (follows page 20).

COURTING DEVELOPERS

With the launch of Visual Studio .Net, Microsoft has started the battle for the hearts and minds of developers. Daniel Mezick, president of New Technology Solutions Inc., outlines key points developers will consider when making their choice. **www.computerworld.com/community/os**

MAINFRAME MANIA?

Last week's Page One story on the high demand for IT professionals with mainframe skills unleashed a wave of reader responses, especially from a few people who took issue with the story's premise. Read their comments and post your thoughts in our online forum. **www.computerworld.com/q?a1670**

AT DEADLINE

Sun Hits Microsoft With Antitrust Suit

Sun Microsystems Inc. filed a private antitrust lawsuit seeking more than $1 billion in damages from Microsoft Corp., plus a preliminary injunction that would force Microsoft to include Sun's Java virtual machine (JVM) code in Windows XP and Internet Explorer.

Sun's suit, filed in U.S. District Court in San Jose, accuses Microsoft of using illegal means to block the distribution of Sun's Java technology. As part of the suit, Sun is asking the court to stop Microsoft from making its own JVM software available for download.

The suit "seeks to restrain Microsoft's anticompetitive behavior and remedy the damage that has resulted from Microsoft's illegal monopoly," said Michael Morris, Sun's general counsel, during a teleconference on Friday.

Sun is the third technology vendor to sue Microsoft on antitrust grounds this year. Similar actions were filed in January by Netscape Communications Corp. and last month by Menlo Park, Calif.-based Be Inc., which has sold off its PC operating system assets and is dissolving itself.

Like Netscape and Be, Sun cited the ruling in the government's antitrust case against Microsoft that was issued last June by the U.S. Court of Appeals in Washington. As part of that decision, the appeals court found that Microsoft had used anticompetitive means to get developers to use its Java implementation. But the court also said Microsoft's JVM technology wasn't illegal in its own right.

Microsoft spokesman Jim Desler contended that there is "no legal or factual basis" for Sun's suit. "Millions of consumers who use Windows also use Java technology every day," said Desler. "It's time to move past these issues, many of which appear to be related to the lawsuit that the [two companies] settled last year."

In that earlier case, Microsoft paid Sun $20 million to settle a trademark infringement lawsuit that Sun had filed in 1997 charging Microsoft with illegally modifying Java.

– Patrick Thibodeau

Microsoft Remedy Battle Heats Up

Software vendor's opponents get one last opportunity to secure harsher sanctions

BY PATRICK THIBODEAU
WASHINGTON

THE MICROSOFT antitrust trial will begin its most critical phase next week, one that will probe the company's power to shape the future of the high-tech industry.

This remedy phase will examine, for instance, whether handheld device makers such as Palm Inc. represent a formidable challenge to the Windows monopoly but risk a fate similar to that of Netscape Communications Corp., which was unable to overcome Microsoft's desktop dominance.

Nine nonsettling states and the District of Columbia claim that the U.S. Department of Justice's settlement with Microsoft won't preserve business or consumer choice and say tougher sanctions are needed.

It will be a battle of hypothetical analyses about the future, said Hillard Sterling, an attorney at Chicago-based law firm Gordon & Glickson LLC. "There is no solid, definitive proof about what really is going to happen in the markets," he noted.

The Final Act

Determining a remedy in the Microsoft antitrust case won't be a fast process.

Length: Six to eight weeks. Each side has 100 hours to make its case.

Witnesses: A total of almost 50 witnesses may be called.

Outlook: Judge Colleen Kollar-Kotelly may be inclined to accept the settlement, but that may not prevent her from toughening some provisions.

Emerging Challengers

But there is proof regarding what's happening in the market today. Since the original trial ended almost two years ago, Microsoft Corp.'s dominance in the PC market has increased, according to market research firm IDC in Framingham, Mass. The vendor went from having a 92% share of all PC operating system shipments in 2000 to a 94% share last year.

Nonetheless, new technologies are emerging to challenge Windows, including intelligent appliances such as a device that's a combination cellular telephone, personal digital assistant (PDA) and PC.

But Microsoft is also pushing handheld devices running Windows CE because of their ability to work well with Windows PCs. "Organizations have a tendency to go along the path that is easiest," said Dan Kusnetzky, an analyst at IDC.

In court papers, the nonsettling states said that an official at Santa Clara, Calif.-based Palm would testify that PDAs rely on synchronization with Windows and that Microsoft "has attempted to block Palm's development through anticompetitive actions such as blocking access to Microsoft's development tools."

The remedy phase may also have a direct effect on software that runs corporate business systems. Novell Inc.'s chief technology officer, Carl Ledbetter, will testify for the states on the need for prompt, accurate and complete disclosure of application programming interfaces (API) from Microsoft and will allege that the company is interfering with the performance of non-Microsoft software.

Microsoft has said that it discloses all APIs. But Frank Gioffre, president of the Philadelphia Area NetWare Users Group, contended that the company has an unfair advantage because third-party developers don't have access to "the core [source] code that's behind everything."

The states' settlement would give third-party developers access to Microsoft source code at a secure facility. The Justice Department settlement authorizes a technical committee to oversee the deal to ensure that all disclosures are made.

Regardless of how the API issue is addressed, Elizabeth Hamilton, Novell systems administrator at the Delaware River Port Authority of Pennsylvania and New Jersey in Camden, N.J., said she believes NetWare is a superior system. She credited Microsoft's success to marketing Windows to upper management.

Quick Link For more on Microsoft's ongoing antitrust case, visit our Web site:
www.computerworld.com/q?s1100

Corrections

A quote in the March 4 issue's "NAS Finds Its Niche" Field Report was attributed to the wrong consultant at Accenture Ltd. The comment was made by James Bowler, a partner in Accenture's core technology practice.

The maker of the IPS 2000 Storage Switch was misidentified in the "Already to Market" story that was part of the Emerging Technologies feature in the March 4 issue. That product is made by San Jose-based Nishan Systems Inc.

Government Downplays Legal Wins

WASHINGTON
It was as if the U.S. government had lost rather than won its antitrust case against Microsoft. Although U.S. attorneys called the Court of Appeals decision a major victory when it was reached in June, they spent last week arguing to a federal judge that the court ruling imposed broad limits on the scope of any settlement and that their settlement proposal was the best deal possible.

There was no debate from Microsoft. Its legal counsel simply said the company wanted to get back to work and end the distraction.

Critics contend that the government's settlement, which sets uniform licensing and pricing terms for PC makers, requires flexibility on desktop configurations and seeks to ensure access to Windows technical information for developers, doesn't prevent Microsoft from squashing new challenges to its Windows operating systems from things such as handheld devices and Internet services.

But Philip Beck, the U.S. Department of Justice lead trial attorney, said that the district and appeals court rulings aren't mandates to draft a settlement affecting other markets. For instance, the government didn't prove that Netscape's browser could have evolved into an alternative to Windows. The court didn't find that Microsoft used its monopoly to "to get an unfair advantage in other markets," he said. The government won its monopoly maintenance charge but was reversed on the claim that the company had attempted to monopolize the browser market.

Former federal Judge Robert Bork, representing The Project to Promote Competition & Innovation in the Digital Age in Washington, disagreed. He said the settlement "is deeply harmful to the public interest."

If it had been in place five years ago, he added, "it would not have prevented Microsoft's predatory campaign" against Netscape's browser and Sun Microsystems Inc.'s Java programming language.

– Patrick Thibodeau

Nestle Shifts From HP to IBM in Data Center Pact

$500M deal calls for consolidation of global operations

BY TODD R. WEISS

Global food and beverage company Nestle SA has signed a $500 million, five-year deal with IBM for server hardware, software and IT services that will be used by its operations in 84 countries.

Nestle last week said it plans to streamline and replace more than 100 of its IT facilities worldwide with five new centralized data centers that will be equipped by IBM.

The loser in the deal appears to be Hewlett-Packard Co., which is an established provider of hardware, software and support to Nestle. Andrea Bass, a spokeswoman for HP, said the company is "disappointed with the shift, but we still feel we have a better solution."

Bass refused to comment further on the deal or on HP's history with Nestle.

Under the contract, IBM will provide pSeries Unix servers, xSeries Intel servers, Enterprise Storage Servers, storage-area networks, DB2 software and Tivoli Systems Inc. software for the five Nestle data centers. Three regional data centers will be located in Phoenix, Frankfurt and Sydney, Australia. Two additional data centers, one for consolidation and one for development, will be set up in Bussigny, Switzerland. Although IBM will equip the sites, Nestle's IT staff will continue to operate them, according to IBM.

A Global Migration

Francois Perroud, a spokesman at Nestle's headquarters in Vevey, Switzerland, refused to comment last week on which vendor was being replaced in the new deal. He said that several vendors were reviewed and that IBM was selected because its global reach is a good fit with his company's worldwide business. Also, he said, the two companies have worked well together on previous IT projects.

The new IT deal is part of an ongoing effort at Nestle to create a common infrastructure worldwide in order to save money and increase efficiencies, Perroud said. "We chose the vendor who appeared to most likely create the effect we were looking for," he said.

IBM will also help integrate the deployment of SAP AG's mySAP.com e-business software throughout Nestle, giving its workers access to mySAP.com via an internal portal customized for their individual jobs.

According to Rob Enderle, an analyst at Giga Information Group Inc. in Cambridge, Mass., the deal with Nestle was certainly helped by the "anti-HP, anti-Compaq campaign" IBM has used since the planned merger of the two companies was announced last year. What IBM has done, Enderle said, is to ask enough questions to raise doubts in the minds of prospective customers. "This is the first informed indication that it was working well," Enderle said.

"Nestle is considered to be one of the flagship accounts. So HP clearly would have been a bidder" for the contract, he said.

But aside from any merger concerns, it's unlikely that IBM would have been able to replace HP if Nestle had been totally satisfied with the previous contract, Enderle said.

The planned merger between HP and Compaq Computer Corp. may have also worked against HP because executives have been so distracted by the difficulties of the merger that they probably weren't able to personally lobby Nestle, he noted.

Jeff Roster, an analyst at San Jose-based Dataquest Inc., said deals like the one between Nestle and IBM are likely to be repeated as more user companies link up with IT partners that share visions of consolidated and more efficient data centers.

Being able to consolidate 100 data centers into five is "phenomenal," Roster said. "Think of the efficiencies. This kind of approach, I think, will become more common."

Sweet Deal

Nestle said that it was swayed by IBM's:

- Previous IT relationship with Nestle
- Global presence
- Data center consolidation experience

Study: Web Exposes Data on CIA Networks

Security firm claims to have mapped unclassified networks in surprising detail

BY DAN VERTON

A London-based Internet security and risk consulting firm last week published the results of a two-day study that highlights in surprising detail the CIA's primary points of presence on the public Internet.

Using open, legal sources of information and without conducting any illegal port scanning or intrusive network probes, Matta Security Ltd. produced a detailed map of nonclassified CIA networks, including several that aren't readily available to the public. Matta's study also uncovered the names, e-mail addresses and telephone numbers of more than three dozen CIA network administrators and other officials.

A CIA spokeswoman cast doubt on the significance of the report, stating that there are many IT professionals within the agency who are "overt" employees and need to have Internet access.

However, some security experts, although vague about the specific nature of potential vulnerabilities such information could be used to exploit, noted the possible threat from determined adversaries who might be able to use the information to obtain more sensitive or secret information or for other forms of attack planning.

"The points of presence all seem to be overt CIA links, and the names are of overt employees who seem to be either system managers or points of reference for billing purposes," said Vince Cannistraro, former chief of counterintelligence at the CIA, who reviewed the report. "It doesn't tell you anything about the clandestine side of CIA networks over which classified information flows and which has no public points of presence. But perhaps these are good starting points for less-scrupulous elements to begin cyberattacks."

AT A GLANCE

Not-So-Secret Agency Facts

What you can learn about the CIA on the Internet:

Names, e-mail addresses and phone numbers of network administrators

IP addresses and domain names for Web servers, relays, routers, router interfaces and mail exchanges

Nonpublic subdomains, such as nro.odci.gov, nic.odci.gov, iodine.udcia.gov, amino.ucia.gov and iron.ucia.gov

A Foot in the Door

Richard Hunter, an analyst at Stamford, Conn.-based Gartner Inc. and a former National Security Agency analyst, cited the report as an example of the threat that open information can pose to any organization, including intelligence agencies.

"Simply knowing the names and e-mail addresses that Matta turned up would be enough for some social engineers to get the rest of the information necessary to mount an attack," said Hunter, referring to hackers who break into networks using information obtained from legitimate users or public sources.

"The fact that this information was gathered through a search on Google.com, which is hardly considered by most people to be a hacker's tool, is especially interesting," he noted. "The network map is rudimentary, but it gives an attacker some idea of where to look first."

And that was the whole point of the study, said Chris McNab, the report's primary author.

"We wanted to draw attention to the risks of publicly available data that could be mined by determined attackers when targeting large organizations," said McNab. "Through issuing simple search engine requests, combined with [network interface card] and [Domain Name System] querying, we were able to build good pictures of the CIA's primary Internet presence, without ever port-scanning or probing their networks directly."

Steven Aftergood, a defense and intelligence analyst at the Federation of American Scientists in Washington, said he wasn't shocked by the results of the study.

"Any server that is connected to the Internet will always leave certain footprints," said Aftergood. "It would be a stretch to call them vulnerabilities. On the other hand, the CIA may be unhappy about this effort because it reveals more than the agency wants the public to know."

Quick Link: For a detailed map of the CIA's unclassified Internet points of presence, visit our Web site: www.computerworld.com/q?a1680

ROI on IT Projects Difficult to Measure

Conference attendees cite lack of tools, processes needed to perform calculations

BY THOMAS HOFFMAN
PALM DESERT, CALIF.

ROI MIGHT BE the acronym du jour in these budget-conscious times, but how well do companies really measure returns on their IT investments?

Not very well, according to an informal poll at *Computerworld*'s annual Premier 100 conference, which was held here last week to honor top IT leaders. The event drew more than 400 attendees.

When asked during a session if their firms go back and measure the return on investment of IT projects six months after the work is completed, 68% of the respondents said "rarely" or "never." About 300 people attended the session, although some may not have taken part in the poll.

Good Times Vs. Bad

"When times are tough, like in the third and fourth quarters last year, we're focused on costs and cost savings," said USG Corp. CIO Jean Holley, who was one of the panelists at the ROI session.

But when business conditions are good, "you're focusing on the customer," Holley said. "The customer is king, and much less ROI measurement takes place."

Additional polling results supported Holley's comments. For example, 65% of the respondents said they don't have the knowledge or tools needed to do ROI calculations. Nearly 75% said their companies don't have formal processes or budgets in place for measuring the ROI of IT projects.

Still, there are effective ways to track ROI during both good and bad times, according to Holley and her fellow panelists. Among their tips: Break long-term projects into bite-size chunks so deliverables can be measured quarterly or even monthly.

For example, Holley said the IT group at Chicago-based USG conducts monthly assessments of project milestones, such as development progress and enablement of business productivity improvements. That way, she said, "if we're nine months into a project, we can be sure that we're hitting our targets." Efforts such as these can also help to ensure that funding for follow-on project phases will be approved by senior executives at the building materials company, Holley said.

IT managers can take other fairly simple steps to justify projects, according to the panelists. "If you can't do a one-page benefit analysis on the dollars you're spending, you shouldn't do [the project], should you?" said Russ Lambert, director of e-commerce at Pittsburgh-based Wesco Distribution Inc.

ASA MATHAT

USG'S HOLLEY: Much less ROI measurement takes place when business is good.

Cathie Kozik, CIO at Naperville, Ill.-based Tellabs Inc., said she works with the company's chief financial officer and the controllers from its business units to examine the costs and expected returns of IT projects. The group then ties its planning work to a balanced scorecard tool that's used to track the results.

The most critical part of the process: The ROI generated by projects is tied to the bonuses of the team leaders who are responsible for them, a provision that's "very important" in helping to ensure that the efforts are successful, Kozik said.

Economic Woes Force IT to Be Flexible

BY THOMAS HOFFMAN
PALM DESERT, CALIF.

Front-line IT leaders should make sure their groups are flexible enough to handle continual adjustments in strategies because of changing business conditions and needs — or else suffer the consequences.

That was the mantra espoused by panelists during a session on IT leadership in challenging times at *Computerworld*'s Premier 100 conference here last week.

"A CIO's job is 90% change management and organizational and 10% technical," said Craig Luigart, CIO at the U.S. Department of Education.

As an example of the need to be flexible, Luigart said the economic recession's pinch on tax revenue prompted the Education Department and other federal agencies to speed up online government projects aimed at reducing their costs.

ASA MATHAT

RAGUNAS challenged his IT staff at Staples.com to be aggressive with the business side.

Because of the ongoing economic challenges, Luigart and other panelists emphasized the importance of breaking long-term IT projects into two- or three-month increments so that their value to a company's business operations can be measured on a regular basis.

Michael Ragunas, chief technology officer at the online division of Framingham, Mass.-based office supply retailer Staples Inc., said the economy prompted him to have Staples.com's IT staffers "challenge" business managers on what they're expecting from key IT projects "and what they're out to accomplish. I'm asking our people to be more aggressive."

But Staples isn't standing still. One recent project was aimed at luring shoppers to use self-service kiosks in the company's 1,000-plus U.S. stores to buy build-to-order PCs that are made for Staples by third-party hardware vendors. That has helped generate an additional $4 million in weekly sales for Staples while reducing its inventory costs, Ragunas said.

Cruise Line's CIO Changes Leadership Tack

PALM DESERT, CALIF.

Tom Murphy is one CIO who was willing to resort to Plan B on his company's IT strategy as well as his own style of leadership.

When Murphy joined Miami-based Royal Caribbean Cruises Ltd. three years ago, he was told that its IT organization had no vision. He managed to improve the 400-person department's standing within the firm, thanks partly to the initial execution of a $200 million systems upgrade, called Project Leapfrog.

But Murphy said during the Premier 100 conference that he eventually found himself asking some hard questions about his effectiveness as an IT leader. Murphy said he thought he wasn't communicating well and sensed that the IT department was "moving sideways."

After attending a leadership class, Murphy said he realized he had always been concerned about "building a legacy." But, he said, when the going got tough in earlier jobs, he got going – out the door.

At Royal Caribbean, he instead decided to empower his staff and encourage them to be honest about his leadership. Now, his managers "can lead themselves," Murphy said. "I can't think of a better legacy to leave behind than that."

That approach was crucial after Sept. 11, when Royal Caribbean's management ordered massive budget cuts. IT offered to go first and took the biggest hit, cutting nearly half of its staff and shelving Project Leapfrog, Murphy said.

– Rick Saia

MORE ONLINE

In a Nutshell

These and other stories can be found on our Web site's Premier 100 page: **www.computerworld.com/q?a1660**

- Many IT executives say they **still don't think their security budgets are appropriately funded.** Meanwhile, a panel recommends more sharing of security-related information.
- **United Air Lines CIO Eric Dean** says IT managers need to be more candid with business users about what systems can and can't do.
- Panel members advise IT managers who are looking to install wireless applications and other new technologies **to be sure they get their business units involved in the process.**
- **Retailers and other consumer-oriented companies have an advantage** over manufacturers when it comes to using CRM systems to learn about their customers, panelists say.

AGRICULTURAL PRODUCTION: AUTOMATED IN 1793

MANUFACTURING: AUTOMATED IN 1913

THE CORPORATE DATA CENTER: AUTOMATED IN 2002

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BRIEFS

Microsoft, Sun Warn About Flaw in Java

In a coordinated move, bitter rivals Microsoft Corp. and Sun Microsystems Inc. warned that a security flaw in Java virtual machine software could let hackers take control of Web browsers and steal passwords and other user data. Both vendors released patches designed to fix the problem, which could affect companies that have installed proxy servers for their browsers.

Network Associates Ends Work on PGP

Network Associates Inc. in Santa Clara, Calif., said it's stopping development of its Pretty Good Privacy (PGP) encryption software after failing to find a buyer that would pay what the company wanted for the technology. Bug fixes will be released for the next 12 months, and customer support contracts will still be honored. Free versions of PGP are widely available on the Internet.

Amex and IBM Team On Software Project

A week after announcing a $4 billion outsourcing deal, American Express Co. and IBM said they're jointly developing Web-based expense reporting and purchase reconciliation software. The products are due for release by midyear and will be sold by New York-based Amex as part of a suite of expense-management tools that run on systems being hosted by IBM.

Short Takes

Cary, N.C.-based **SAS INSTITUTE INC.** signed a deal to buy **ABC TECHNOLOGIES INC.**, a Beaverton, Ore.-based developer of activity-based analysis software. . . . The **U.S. HOUSE AND SENATE** approved an economic stimulus bill that includes the IT industry's top request: a depreciation bonus on capital equipment purchases.

Navy Floats IM With Allies

Messaging speeds and overhauls communications

BY JENNIFER DiSABATINO

"Can you send me 200 pounds of potatoes?"

As recently as a few months ago, sending that request from one Navy ship to another would have been a complicated process. Now, however, a requisitions clerk can send his request via instant messaging (IM). He can even send it to ships from allied countries during a war.

INSTANT MESSAGING

IM has become a tactical weapon for the U.S. Navy and its allies in the war on terrorism. Supply clerks are chatting directly with other clerks, doctors with other doctors and lawyers with other lawyers. And commanders are sharing battle plans with one another in real-time meetings.

In the past six months, Canada, the U.K., Australia and Germany have installed Sametime software and servers on their ships and in ports that serve as network hubs.

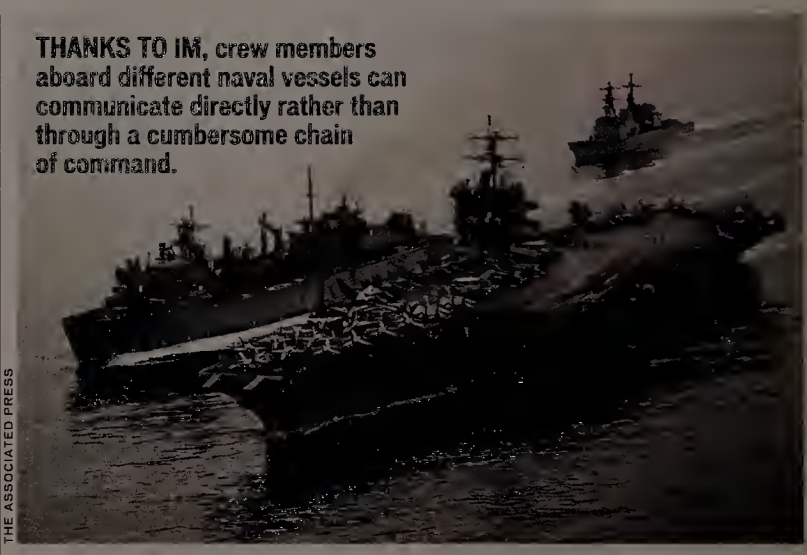
They chose the IM product from IBM subsidiary Lotus Software Group because two years ago, the U.S. Navy began a limited deployment of that application, said Richard Williamson, a Navy spokesman for the Space and Naval Warfare Systems Command.

The Navy widened its Sametime deployment after its initial January 2000 installation in the Pacific Fleet because there were enough personnel with expertise on that system to move it out quickly to the rest of the fleet, "rather than give the guys something they've never seen before," Williamson said. "We have more experience with Sametime. We were using Sametime in the Pacific Fleet."

As part of the project, called Collaboration at Sea, the Navy has rolled out Sametime to all U.S. carrier groups and all U.S. amphibious-ready groups. But if the entire Navy decides to adopt IM, there will be a multivendor competition, Williamson said.

Before the use of IM, sailors had to pass information up through the chain of command to the captain or another high-ranking official, who then passed that information to another high-ranking official and back down the chain.

Communication between allies was even worse.



THE ASSOCIATED PRESS

THANKS TO IM, crew members aboard different naval vessels can communicate directly rather than through a cumbersome chain of command.

"Let's say Country A's ship is sitting there, and Country B's ship is sitting there in sight. I could not send a message directly. It had to move circuitously," Williamson said. Information would have to be relayed through each country's formal military communications channel, he said.

The convoluted process was necessary for security purposes and because there was a lack of interoperability among systems, Williamson said.

The use of IM has streamlined planning significantly, which was expected, Williamson said. But it has also completely changed way in which sailors communicate with one another and plan projects, moving collaboration down the ranks.

"Some people have termed it a paradigm shift in the way we conduct operations," said Lt. Cmdr. Perry Dombowsky of the Royal Canadian Navy.

So-called communities of practice — such as doctors on different ships collaborating with one another — have sprung up where before sailors operated in isolation at sea.

Now, because they are using the same software, ships can communicate through one hop to a server in a port with a network hub, he explained.

Network Management

Information is transferred over a 64K bit/sec. connection on the International Maritime Satellite network, which was formerly run by the U.S. government but is now managed by an international consortium of countries.

From ship to ship and ship to shore, the data is routed through servers located at naval stations in key ports. For the U.S., the hub ports are located in Norfolk, Va.; Wahiawa, Hawaii; Naples, Italy; and on the island of Bahrain in the Persian Gulf. For Canada, those ports are Halifax, Nova Scotia, and Esquimalt, British Columbia.

There are two networks. One is classified and meets National Security Agency guidelines. That network carries strategic information, which could be anything from legal advice about boarding a foreign vessel to plans for positioning ships.

Less sensitive information, such as doctors' memos about treatments and sailors' notes to family members, moves over the unclassified network. ◗

Analyst: IM Can Topple Military, Business Power Structures

IM technology can speed up and streamline business communications, and it can change the way your company is organized.

"The hierarchy of traditional organizations came from the military in the first place, and now the breakdown of that is coming from the military," said Daniel Rasmus, an analyst at Giga Information Group Inc. in Cambridge, Mass.

Sailors in the U.S. Navy are creating communities of practice using IM software from Lotus.

"They can now ask: 'Are you seeing the same blip I'm seeing?' " Rasmus said.

There are some scenarios in business that approximate the situation that convinced the Navy and its allies to deploy IM on ships.

"Navy battle groups are a microcosm of a geographically distributed organization," Rasmus said.

Communicating across allied navies is analogous to communicating among newly merged or acquired business units.

For example, Rasmus said, a community of practice among sailors would be quite similar to salespeople in different divisions of a large, multinational corporation talking to one another about leads and trends, instead of going through division managers.

"If you're talking about some business situation," such as a factory shutdown, Rasmus explained, "you can have conversations in real time with an instantly convened meeting."

As business and the military shift to more community-based networks, power structures could change, Rasmus said. For example, that might mean the transfer of onboard medical training budgets from a functional organization, such as the Pacific Fleet, to a community, such as a group of ships' doctors.

"We're at a shifting point now where traditional functions and traditional hierarchies are changing," he said.

– Jennifer DiSabatino

Merrill Lynch Replacing Global Order Entry Systems

Brokerage consolidates cross-border trading systems; expects three-year ROI

BY LUCAS MEARIAN
NEW YORK

MERRILL LYNCH & Co. is replacing its order entry software around the world as part of a multimillion-dollar project aimed at eliminating a hodgepodge of in-house and acquired systems.

Marvin Balliet, the chief financial officer for Merrill Lynch's technology group, said he expects the project — the cost of which he ballparked at "tens of millions of dollars" — to generate a return on investment within three years through cost reductions and additional sales.

Still, he said, the actual ROI will be difficult to measure because "part of why you do it is cost reduction, part of why you do it is system enhancement, and part of why you do it is revenue retention."

"Today, my revenue may be down in a country where I put it in, but that has nothing to do with the fact that I now have a new platform," said Balliet.

An Industry Trend

Centralizing systems has become a trend among financial services companies as the Internet and globalization — combined with the industry's push to do straight-through processing — are forcing brokerages and their clients to communicate across borders in near-real-time, according to analysts.

"It was an interest of companies before. Now, it's a real driver," said Shaw Lively, an analyst at IDC in Framingham, Mass. "It's not necessarily always an upgrade but more about trying to get common systems, common platforms, common interfaces," he said.

One financial services firm that's part of the global systems consolidation trend is New York-based Citibank, which is currently replacing a decades-old set of back-office corporate banking systems with a single platform in all of its overseas corporate offices [News, Feb. 4].

Balliet said Merrill Lynch is initially focusing on its equity cash businesses in overseas operations because those systems offer the greatest opportunity for increased efficiency. He said the new platform will establish a global network of trading desks that can execute orders from regional exchanges instead of local connections. Merrill Lynch's current vendor-built order entry systems require middleware interfaces to allow far-flung offices to communicate with one another.

Balliet said Merrill Lynch is still evaluating what it will do with its U.S. order entry system "because we have a reasonably robust system from one of our acquisitions in the U.S., and the question is, do we have one global system or two?"

Piecemeal Systems

Overseas, however, Merrill's international trade order entry systems have been put together piecemeal, with some added through acquisitions of other firms, according Ballier.

In May, Merrill Lynch partnered with Royalblue Financial PLC, the London-based maker of the global financial trading software that supports Merrill Lynch's global trading requirements in the European, Japanese, Asia-Pacific and U.S. markets. The deal included Royalblue's Fidessa trading platform and consultancy services. Royalblue's software supports order management, trade management and market execution across some 20 markets, according to Royalblue officials.

The Royalblue order management system rollout has been completed at Merrill Lynch offices in Japan and the rest of Asia; the system is now being introduced at the firm's European offices.

If Merrill Lynch decides not to replace its U.S.-based order entry systems, the project is expected to be completed within the next year, according to Balliet.

Big global systems replacement efforts like Merrill Lynch's typically cost tens of millions of dollars to complete, but companies may find that such projects are worthwhile because "biting the bullet" now helps avoid the cost of developing interfaces in the future, said Larry Tabb, an analyst at Needham, Mass.-based TowerGroup.

"In a period of business earnings pressure, it can force firms to look at how to reduce overall cost and centralize technology, reduce redundancy and streamline their processing," said Tabb.

Order of Magnitude

What Merrill Lynch is getting in return for its order system changeout:

1. A three-year ROI, thanks in part to increased revenue and decreased costs
2. A single platform that's able to communicate across borders without interfaces
3. The ability to execute the orders at exchange connections

Merrill Lynch's CTO and Head of Global Technology Is Bullish on Web Services

Merrill Lynch Chief Technology Officer **John McKinley** was recently named head of Global Technology & Services at the brokerage, which created the new division by merging its technology and global services units.

In an interview with *Computerworld*'s Lucas Mearian, McKinley commented on the role of Web services, emerging XML standards, Linux and offshore technology development as it relates to his staff of 6,000 IT professionals.

Why did you merge technology with global services? There are a few trends that cross the entire enterprise. One is that you need to have competitive cost structure. The second thing is world-class customer service. While I think we've done some really great things with that, I think there's even further ground for us to hoe here.

Technology can play a huge role as an enabler for a radical redesign of business processes. I think the third thing is that we're in a heavily regulated environment on a global basis. All three of those things point to a very tight connection of the operations and technology functions.

McKINLEY: IT can enable "radical redesign of business processes."

What role will Web services play in your future? We've already made the bet that Web services will be probably one of the most fundamental pillars of our overall technology architecture. I think the industry's maturing to the point to deliver on the aspiration of a high degree of software reuse and service reuse within the enterprises and between enterprises.

Do I think all those blocks are complete? No. We're obviously pushing on our major vendors – Microsoft, IBM, BEA, etc. – to come up with a more harmonized articulation of Web services.

Do those Web initiatives include embracing emerging XML standards? The real opportunity for us as we embrace the emerging standards are XML schemas related to trades processing or research. The good news is we're making headway. The challenge is we probably have more demand than supply. We'd like to have more of those standards in place.

What are the key networking technologies you're looking to for the future? We've been using Linux in more of the appliance space [since last year]: Apache, firewalls, even storage appliances. But as we looked where it was going and tried to make sure we were always taking advantage of Moore's Law, etc., we wanted to commoditize the hardware wherever we could, and Linux is a powerful tool in that commoditization of boxes.

We are moving down two paths, one of which is using Linux on Intel. The other is our work with IBM: Linux on the zSeries. It's kind of a reinvention of the mainframe truly as an enterprise server. The jury is still out on whether we have to make an either/or decision here, but we've certainly recognized that both have attractive sets of attributes.

What are you doing in offshore development? I started the process [when I worked at] GE. I'm a huge fan of offshore. I think people often typecast it as a place to do maintenance. I think that's incredibly wrong. I think the goal is to do more new development there than maintenance. While we're starting with a dialogue around technology, and we've got 600 people offshore already, and that number will probably be doubled in the near term.

BRIEFS

Nortel Delays Switch For Optical Networks

Nortel Networks Corp. indefinitely postponed shipments of a photonic switch that would let users send data through optical networks in the form of light, saying it didn't see enough demand for the product. Brampton, Ontario-based Nortel also announced a $500 million deal to provide networking equipment to Atlanta-based Cingular Wireless over the next three years.

McData Seeks to Bar Brocade Storage Sales

Broomfield, Colo.-based McData Corp. asked a federal judge for a preliminary injunction to block Brocade Communications Systems Inc. from selling storage networking devices that allegedly infringe on a McData patent. San Jose-based Brocade reiterated its view that a patent suit McData filed last month lacks merit. McData also warned that it expects a first-quarter loss.

HP Rolls Out New Low-End Unix Boxes

Hewlett-Packard Co. matched rival Sun Microsystems Inc. by announcing low-end Unix servers that start at less than $1,000. Despite the low entry-level price, HP said typical configurations will start at about $3,500. HP is offering a single-processor system and a dual-CPU model that are based on its PA-8700 chip and aimed at distributed or branch office applications.

Short Takes

IBM introduced a ThinkPad mobile PC, starting at $3,349, that offers workstationlike graphics and integrated wireless technology. . . . SUN, ORACLE CORP., ELECTRONIC DATA SYSTEMS CORP. and PRICEWATERHOUSECOOPERS last week announced a jointly developed biometric system for use in screening airline passengers.

'Limited Edition' of Datacenter Debuts

Demand unclear for Microsoft's newest Unix challenger

BY CAROL SLIWA

MICROSOFT last week released a higher-performance "limited edition" of Windows Datacenter Server, its challenger to high-end Unix operating systems.

But it's uncertain how much appeal the limited edition will have for corporate users, many of whom don't rush to make high-end system changes.

Josie Bradley, vice president of IT at Vancouver, British Columbia-based Mark Anthony Group, said some users like to be early adopters, but her company will adopt only a general release of Datacenter.

Bradley, whose company began deploying Datacenter in October, noted that testing for such a high-end system can be time-consuming because many applications are consolidated onto the mainframe-type system. She said her department would need a six-month window to plan, test and roll out a new version of Datacenter.

Al Gillen, an analyst at IDC in Framingham, Mass., said he expects customers to wait for a general upgrade "because you've got a very conservative customer base at that level."

"They don't like to disrupt their environments. Those guys don't just try something because it looks cool," he said.

The limited edition is based on code that will be used in the upcoming Windows .Net Server, which is due in the second half of the year. But unlike the .Net edition of Datacenter, which will be offered in both 32- and 64-bit versions, the limited edition is available only in a 32-bit version.

Microsoft group product manager Bob O'Brien touted improved performance, as illustrated by SAP AG and TPC-C benchmark tests, as the limited edition's key feature.

Datacenter is sold by hardware makers as part of their systems, not by Microsoft itself. Windows Datacenter Server Limited Edition is being sold solely through Unisys Corp. in Blue Bell, Pa.

Because of Unisys' support, Tom Bittman, an analyst at Stamford, Conn.-based Gartner Inc., said users shouldn't be hesitant to adopt it. "Every Datacenter product is a limited edition. It's limited to an [original equipment manufacturer]. You only buy it through an OEM," he said.

As analysts had expected, adoption of Windows Datacenter has been light since the high-end operating system was released in September 2000. Gillen said Datacenter shipments represented less than 1% of total Windows server operating system license shipments last year.

AT A GLANCE

High-End Windows

Key facts about Microsoft's new Datacenter Server release:

- Targeted users are financial, retail and telecommunications companies as well as Internet service providers.
- Uses include e-commerce, transaction processing and data warehousing.
- The software supports only 32-bit technology and will be sold exclusively by Unisys.

Volvo Taps IT to Help Truck Units Collaborate on Design

BY MARC L. SONGINI

Volvo Group is launching a set of collaborative product development applications in a bid to cut costs and more tightly connect its three separate truck units and their suppliers during the vehicle design process.

Volvo Trucks announced last month that it is standardizing truck development activities at its Volvo Truck Corp., Mack Trucks Inc. and Renault VI units. To make that happen, it's installing product life cycle management (PLM) applications developed by Paris-based Dassault Systemes SA and sold by IBM.

PLM technology lets companies share a single view of product and procurement data among different departments and external suppliers. Driving Volvo's need for that capability is its acquisition of the Mack and Renault truck operations 15 months ago in a deal that made it the second-largest truck maker, behind DaimlerChrysler AG.

The initial cost of the software rollout will be more than $10 million, according to Orjan Christensson, CIO for IT applications at Volvo Group in Goteborg, Sweden. He declined to disclose the company's full budget for the software, which will also be used by Volvo's bus operations in a separate installation. Volvo Car Corp. is now owned by Ford Motor Co. and isn't involved in the PLM project.

Christensson said the new applications should reduce the number of prototype vehicles Volvo's truck operations need to build, and help cut product costs and shorten design times. Volvo executives also hope the PLM software will aid the company's efforts to overtake DaimlerChrysler in the truck market, Christensson said.

But DaimlerChrysler has also bought Dassault's applications and said last month that it was already deploying the same PLM tools that Volvo is installing. The software will be used by its interior design and vehicle-packaging teams, according to the automaker. Officials at DaimlerChrysler wouldn't disclose more details last week.

Previously, automakers typically wrote their own product design management applications, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif. But those applications weren't "necessarily the most effective and collaborative" tools, he added.

Volvo currently uses homegrown software that it will mostly phase out as the PLM applications are installed. But the project poses challenges, Christensson said. For example, forcing smaller suppliers to use the PLM tools would put too much of a burden on those companies, he said.

Accelerating Development

Details on Volvo Global Trucks' PLM project:

THE SOFTWARE: Version 5 of Dassault's Catia and Enovia tools

NUMBER OF USERS: About 1,500 seats at 50 facilities

KEY USES: Collaborative development, real-time sharing of 3-D product data

EXTERNAL ACCESS: Web or electronic data interchange links for suppliers

PROJECT STATUS: Pilot installations are under way

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Continued from page 1

Wireless LANs

points and by year's end will have installed another four or five to provide total coverage of the county's 36 square miles. Anderson called the return on investment on the $60,000 Wi-Fi LAN "astronomical," considering the $52 per month he has to pay today for each mobile unit using the CDPD service.

"It's not hard to do the math" to determine the quick payback, Anderson said. Currently, 23 patrol cars are equipped with Wi-Fi, and Anderson can add additional police cars and other municipal users to the system at a hardware cost of approximately $800 per car. Anderson isn't even considering 3G cellular. "3G is slower than what I have now. Our system is much better [than 3G] and has zero dollars operating cost," he said.

Popular Choice

Anderson isn't alone. A growing number of U.S. localities, including the California cities of Glendale and Oakland and counties of Orange and San Diego, have embraced Wi-Fi technology as the high-speed wireless backbone of their networks.

ITEC Entertainment Corp. in Orlando, meanwhile, uses Wi-Fi 802.11b LANs from Cisco Systems Inc. to deliver automated stop-and-route information as well as video newscasts to bus passengers. The company never even considered CDPD or 3G, according to Daniel West, ITEC's vice president for strategic business development (see story below).

The cellular carriers, which have invested billions of dollars in building a nationwide 3G infrastructure, acknowledge that in some markets, wireless LANs could emerge as the mobile data system of choice.

"There is a tremendous amount of excitement around 802.11, and we're studying it pretty heavily ourselves," said Jim Grams, senior vice president of mobile multimedia technology at AT&T Wireless. He declined to say whether AT&T Wireless plans to offer Wi-Fi service.

Grams added that "it is a mistake [to assume] that wireless LAN technology is a substitute" for 3G, which provides service over a wide area. He also pointed out that Wi-Fi suffers from well-documented security problems and that it operates in the unlicensed 2.4-GHz band, making it subject to interference. Cellular services operate in licensed bands.

Sprint PCS Group in Kansas City, Mo., has made an investment in Santa Monica, Calif.-based Boingo Wireless Inc., which offers public access Wi-Fi services in more than 400 "hot spots" nationwide. Company spokesman Dan Wilinksy called Wi-Fi complementary to Sprint PCS's 3G services, but he said the company wouldn't discuss its plans, if any, for Wi-Fi.

Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., said that the fact that fleet users such as ITEC and police departments have started to build their own Wi-Fi networks could be a cause of concern to cellular carriers. While the carriers haven't focused on the dispatch markets, Reiter said, Wi-Fi "does offer some serious competition to 3G."

Quick Link Wi-Fi on the high seas provides 11M bit/sec. service to boaters 10 to 15 miles off the coast:
www.computerworld.com/q?27879

Wide-Area LAN

Wireless LANs can be adapted to serve wide geographical areas. In order to do so, adopters say the following must be done:

Set up extra access points and tuned antennas to ensure 100% coverage

Conduct a survey to determine the presence of other users in the 2.4-GHz Wi-Fi band to locate potential interference

Install bulletproof security, including 128-bit or better Wired Equivalent Privacy, virtual private networks and Media Access Control layer authentication

Use software, such as a mobility server from Net Motion Corp., to handle dropped connections without loss of data

Evaluate what time-sensitive data can be transmitted on a "store and forward" basis only when mobile units come in range of an access point

Wi-Fi Speed Enables Bus Broadcasts

When ITEC Entertainment set up a wireless system to deliver route information and video newscasts to bus passengers, it was looking for speed.

"We push a tremendous amount of data back and forth, including MPEG video files," said Daniel West, the company's vice president for strategic business development. That couldn't be supported by the 19.2K bit/sec. speeds of CDPD or the 144K to 384K bit/sec. speeds touted for 3G. "3G didn't support our business case." West said.

Instead, ITEC has opted for the 11M bit/sec. data rate of Wi-Fi to support its public transit information and entertainment systems currently operating in Milwaukee, Birmingham, Ala., and Orlando.

In Orlando, ITEC has already installed five access points to transmit information to what the company calls a "media engine" in 100 of the 250 buses operated by the Lynx Central Florida Regional Transportation Authority. The hardware setup includes a Wi-Fi receiver, high-capacity hard drives and a Global Positioning System receiver to provide route information and play news and entertainment videos on monitors installed throughout the bus.

Aside from providing the throughput needed to support video programming, the Wi-Fi network saves ITEC from having to pay carriers' monthly fees, which run about $50 per month for CDPD. And there are per-minute or per-packet charges on the few 3G networks operating today. "That's a huge cost advantage for us," West said.

– Bob Brewin

Continued from page 1

Virus Alerts

"While we recognize there is no possibility of having a unified threat scale developed overnight, we would greatly appreciate if you could add a short text description to your alert levels," wrote Bechtel. "Trying to figure out if level 2 is a great danger or low danger can be confusing if you only have the e-mail to go on."

"I disregard [the vendor] classification schemes," said Keith Morgan, chief of information security at Terradon Communications Group LLC, a Nitro, W.Va.-based content management company. "I go by what I see in the wild."

The lack of consensus and standard threat-rating procedures for virus outbreaks was highlighted last week, when six of the major antivirus vendors issued six different threat levels for the Klez.E worm. All six vendors that issued warnings acknowledged the need for a standard warning system.

"It's very difficult to come up with a single reporting mechanism," said Joe Hartman, director of North American antivirus research at Cupertino, Calif.-based Trend Micro Inc. "It really depends on where your customer base is. It would benefit all of us if we could agree on one way."

"Our [ratings] are customer-centric, because that's who we're protecting," said Vincent Gullotta, a vice president at McAfee Anti-Virus Emergency Response Team, a division of Network Associates Inc. "We look at prevalence — what our customers are reporting to us — which is 60% to 70% of a risk assessment."

"Most vendors use the same criteria, but every vendor has pockets or areas where their customer base is located," said Steven Sundermeier, a product manager at Central Command Inc. in Medina, Ohio.

"Each company has a different view of the world," said Vincent Weafer, senior director of security response at Cupertino-based Symantec Corp. "That's why we try to have ratings based on the virus itself."

But Sophos Inc. in Lynnfield, Mass., has abandoned threat ratings altogether, said Chris Wraight, a technology consultant at the company. "Our style is not to hype it and scare clients into buying more antivirus software," said Wraight. "When we issue an alert, we state explicitly how many reports we've had from our customer base." In the end, "you probably want to sign on to multiple security news lists," said Sundermeier. Having multiple alerts will assure a more accurate picture, he explained.

"When attempting to put a finger on the real risk of a virus, it is important to review at least three major vendors' Web sites," said analyst David Bass at PricewaterhouseCoopers in New York. "A user or administrator should not jump to conclusions based on information on any one vendor's site."

AT A GLANCE

Warning Standards

How antivirus vendors devise warnings:

CENTRAL COMMAND INC. Low, medium or high based on spreading routine, spikes in reports and global infection rate

McAFEE Low, medium or high for each category (prevalence, payload and infectiousness)

SOPHOS INC. No rating system; analysis based on customer support calls

TREND MICRO INC. Low, medium or high based on rate of spread and reports from customer gateways

SYMANTEC CORP. Scale of 1 to 5, with 1 being low risk and 5 being high risk. Based on wildness, damage and distribution

Quick Link For news on security threats, visit our Viruses, Worms and Security Holes page
www.computerworld.com/q?a1280

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BRIEFS

Oracle Q3 Numbers Will Be Below Plan

Citing weak software sales in Asia, Oracle Corp. said it will report lower-than-expected results for its third quarter ended Feb. 28. Sales in the U.S. and Europe increased slightly over second-quarter levels but not enough to offset the slowdown in Asia, Oracle CEO Larry Ellison said. Total third-quarter sales will likely be down about 27% from Oracle's year-earlier level.

Credit Rating Firm Downgrades CA

New York-based Moody's Corp. downgraded its credit rating on Computer Associates International Inc.'s long-term debt because of concerns about the company's sales and cash flow, plus new federal inquiries into CA's accounting practices. Islandia, N.Y.-based CA said the downgrade "is not justified by the facts" and added that its cash flow "is more than sufficient."

Amdahl to Become Holding Company

Former mainframe maker Amdahl Corp. plans to transfer its remaining businesses to its Fujitsu Technology Solutions Inc. subsidiary on April 1 and become a holding company for that unit and several other Fujitsu Ltd. operations. Sunnyvale, Calif.-based Amdahl, itself a subsidiary of Tokyo-based Fujitsu, will be renamed Fujitsu IT Holdings Inc.

Short Takes

Rockville, Md.-based MANUGISTICS GROUP INC. said revenue for its fourth quarter ended Feb. 28 was higher than expected, allowing the software vendor to end unpaid leaves for its workers. . . . Santa Clara, Calif.-based PALM INC. agreed to settle deceptive marketing charges filed by the FEDERAL TRADE COMMISSION in relation to its handheld devices.

Microsoft Reorganizes to Spur Revenue Growth

New divisions are aimed at helping to diversify the company's business

BY CAROL SLIWA

MICROSOFT last week said its mobile devices and network service provider groups are being fused into a single business unit, the latest in a string of organizational changes at the company.

The internal changes reflect a fine-tuning and, in some cases, an expansion of Microsoft Corp.'s technology priorities as it tries to find new areas for revenue growth to help offset the effects of slumping PC sales on the company's business.

Other recent moves included the creation of business units for security, enterprise storage and "developer and platform evangelism." Those units fall under the Platforms Group headed by Vice President Jim Allchin. The combined mobile and network service provider unit will report directly to Microsoft CEO Steve Ballmer.

Microsoft spokesman Jim Bak said having the mobile/network service provider division report to Ballmer shows the importance that Microsoft places on that unit, which is charged with helping wireless carriers provide data services in addition to voice.

The developer and platform evangelism unit combines groups that had been spread across numerous business units, according to Bak. Its creation is an indication of Microsoft's priority in promoting its new .Net development environment. In the Platforms Group, the developer division is second in size only to the Windows unit, Bak said.

The addition of the security and storage units reflects Microsoft's hopes to expand on the $4.8 billion in revenue that its enterprise software business collected during the fiscal year that ended last June.

Enterprise server software will be "one of the key drivers of growth" for Microsoft during the next three to five years, said Melissa Eisenstat, a financial analyst at Toronto-based CIBC World Markets, the investment banking and brokerage division of Canadian Imperial Bank of Commerce.

But, Eisenstat said, "the negative is that's a more crowded market," with rivals such as IBM and Oracle Corp. taking the lead among enterprise software vendors.

"If you look at where [Microsoft has] been successful in the enterprise, it's been at the lower end of the market, with small companies or small entities, not doing heavy transaction processing type of applications," Eisenstat said. "So they're not even in what some people would say is the heart of the enterprise."

Eric Upin, an analyst at Robertson Stephens Inc. in San Francisco, said Microsoft is trying to diversify because desktop software provides two-thirds of its revenue and even more of its profits, yet the PC market isn't high-growth. ◗

AT A GLANCE

Product Priorities

The software vendor's strategic areas of focus:

- Windows
- Productivity software, i.e. Office
- Enterprise server software and tools
- .Net platform software
- MSN
- Business applications for small and midsize users
- Software for non-PC devices

Software Vendor Peregrine Puts B2B Unit up for Sale

Say e-commerce didn't fit with other businesses

BY MICHAEL MEEHAN

How hard is it to integrate e-commerce with the rest of your business? So hard that even some vendors can't do it.

Peregrine Systems Inc. is an example. The San Diego-based software vendor last week put its business-to-business technology and services unit up for sale as part of a plan to focus on its core infrastructure management applications.

Peregrine bought its way into the business-to-business market in April 2000 through an acquisition of Atlanta-based Harbinger Corp. But Peregrine CEO Steve Gardner said the operation never meshed with the rest of the company, despite a daily processing rate of 1.3 million transactions on its systems and expected revenue of $120 million during the fiscal year that ends this month.

Peregrine made more than a dozen acquisitions during the past two years "and that's really the only one that didn't fit," said Michele Hudnall, an analyst at Meta Group Inc. in Stamford, Conn. "The integration didn't play out as well as they thought it would."

Karen Peterson, an analyst at Stamford-based Gartner Inc., noted that when Peregrine bought Harbinger, vendors and end-user companies alike were enthralled by the B2B concept and became convinced that electronic trading had to be part of their future strategies.

"What people discovered was that it's not that simple to have e-commerce work alongside the rest of your business," Peterson said. The difficulty of making e-commerce technology work sandbagged growth projections for the business-to-business market, she added.

Peregrine, which expects total revenue of about $700 million this fiscal year, will operate the e-commerce unit as a stand-alone operation starting April 1. If Peregrine is unable to find a buyer, Gardner said he would be willing to spin the unit off as a separate company.

No timetable has been set for completing a sale.

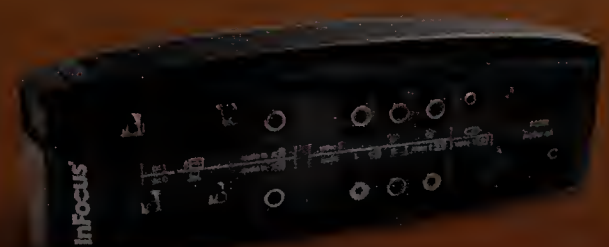
Despite the sell-off plans, Gardner said the business-to-business unit is profitable. ◗

Back-Office Focus

Peregrine announced the following asset management tools at its annual users conference last week in San Diego:

- **An updated transportation software suite** that combines fleet, rail and maintenance management modules
- **Version 2.0** of its property management software, with contract oversight, graphical workflow mapping and an interface to Microsoft Project
- **Health Insurance Portability and Accountability Act** compliance software, with adapters for linking it to other corporate applications

How many IT guys does it take to change a mobile projector into a conference room projector?



None.

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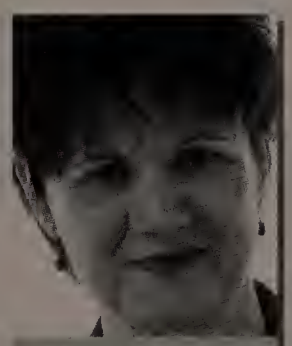
MARYFRAN JOHNSON

Agents of Change

WHAT MAKES AN IT PROJECT A success? Arriving on time and under budget? Showing a measurable return on investment? Delivering value to the business?



MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at **maryfran_johnson@computerworld.com.**

If you're answering "All of the above," few would argue with you. Those are classic, comforting measures of success. Business school clichés. But in the real world, IT projects are often as individual and quirky as the companies they serve.

You'll see what I mean as you read through our Premier 100 IT Leaders Best in Class supplement, in this issue following page 20. We created this awards program within our annual Premier 100 conference for those IT leaders whose thoughtful, innovative use of technology made a real difference to their businesses. The 10 winners hail from industries as diverse as retailing, manufacturing, commodities trading and transportation.

What did our Best in Class projects have in common? They didn't necessarily use leading-edge technologies or wrap up strictly on time and under budget (although some did). They didn't all involve jazzy Web commerce initiatives or measurable ROIs (although some did). But these projects were all ultimately agents of change in the way business was done.

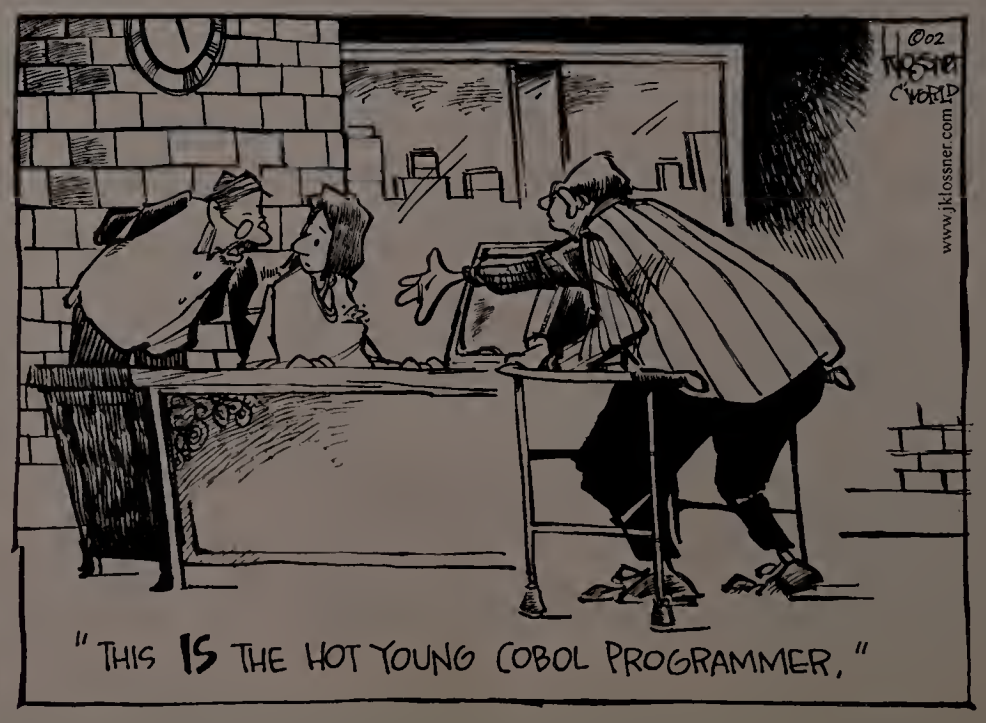
At Burlington Coat Factory, for example, CIO Mike Prince took a calculated and pioneering gamble that an open-source operating system was enterprise-ready. He rolled out Linux systems to 250 stores, saving money, improving remote administration and providing a crash-free operating environment. At office supplier Staples, Chief Technology Officer Mike Ragunas took a gamble of a different sort and pulled off an arduous integration of legacy back-office systems with Web shopping capabilities at in-store kiosks. That enabled a multichannel approach to customers in any of Staples' 1,100 retail stores — and multichannel shoppers spend more money.

For GFInet, a New York-based online trading services company, the award-winning IT project boosted transaction volumes by as much as 30%. But the real change came about in the thinking of the tradition-bound traders, who prefer the telephone to a computer keyboard. Once they saw that technology could handle simpler transactions while freeing them up to concentrate on more complex, profitable trades, CIO Russ Lewis became one of the good guys.

Effectively dealing with resistance to change was the background story in many of these successful IT projects. At Muscatine, Iowa-based manufacturer HON Industries, CIO Malcolm Fields kept his legacy systems replacement on track despite a merger shake-up, a CEO switch and a lot of foot-dragging from employees. "Never underestimate the difficulty" of changing the way people think, he cautions.

Some of our Best in Class winners had their projects wrapped in a matter of months, while others took years. At Lenox Collections, Vice President of IT Bob Palmer rejected the notion of hiring high-priced consultants for a Web site update project, leveraged in-house talent and got the job done in less than six months. On a much larger scale, FedEx CIO Rob Carter took three years to complete an international IT project that made global shipping so much easier for small to midsize businesses that some 70,000 customers have already signed up.

Successful technology projects are as individual as fingerprints, leaving us with no single blueprint. But in the end, they deliver on the promise of change. So as you read the stories behind our Best in Class project winners, watch for ideas you can apply to your own business. Then start thinking like an agent of change. ◗



PIMM FOX

Pay Now, or Pay More Later

HOW MUCH is your IT worth? Do the math; that's the *initial* cost to your organization from potential security breaches.

The revelation that all of the Interior Department's computers had to be shut down because an investigation using ethical hacking techniques revealed large flaws underscored the vulnerability of every system. Last fall, the General Accounting Office confirmed that government computers had little or no protection against terrorists and hackers, and the Office of Management and Budget concluded that two-thirds of federal agency computer systems deserved failing grades for security.

PIMM FOX is *Computerworld*'s West Coast bureau chief. Contact him at **pimm_fox@computerworld.com.**

This is not only a government problem. Business fails just as badly.

"You either buy the risk or you buy the control; there is no free lunch," says Richard Allen, principal security architect at Parapet Security Solutions.

But business users don't want to hear about the added costs and time IT security requires. "If you slow down a project or cost money, you're the enemy," says Allen.

Although security procedures rarely make it to the CEO level, perhaps risk measurement will prod companies to action.

What's the financial risk if someone gets through your Web server port and accesses data inside applications? Ask The New York Times, whose systems were hacked this month via publicly available Internet addresses. In two minutes, a database with contact information for people such as Colin Powell and Robert Redford was available.

What's the financial risk of not performing periodic ethical hacks or penetration tests because of time and cost?

A major problem is that most soft-

Quick Link

For more *Computerworld* columnists and links to archives of previous columns, head to: **www.computerworld.com/q?q1000**

ware — and this includes operating systems — comes with defaults turned on, said Eric Cole, an adjunct professor at Georgetown University. Cole performed an ethical hack on a Fortune 100 company whose CEO told him it couldn't happen. "I turned on the microphone at his computer, recorded his meetings and sent him a CD," says Cole.

The problem remains that ethical hackers have to prove a problem exists to get attention. Yet there are no shortages of remedies.

Core Security Technologies offers software to cut the cost of ethical hacking. Foundstone provides security assessment, while at the application level, Stratum8, Sanctum and Kavado provide software to parse real-time HTTP packets against accepted policies and signatures. Qualys and Vigilante.com sell scanning services, and managed security firm Network Securities Technology has a tool kit for developers to build security into custom applications.

Security costs money, but not as much as cleaning up after an attack. And with all the attention given to security and the tools to achieve it, there's no excuse not to manage IT assets securely. ◗

ALEX TORRALBAS

Lost in the UCITA Fight

UCITA, THE PROPOSED software licensing law, has grabbed a lot of attention in the IT media, mostly focusing on the fear and loathing it has inspired in the corporate world — the buyer's point of view.

But the views of smaller software vendors that lack the clout of an Oracle or an SAP have been lacking, and many of our products are used by the same buyers. UCITA is our attempt to get some "beef" into our relations with them as a counterweight to our lack of clout (read: lawyers and money). Efforts to hammer out a fair agreement between corporate buyers and UCITA supporters continue, but I fear that UCITA will be whittled down to the following list of software license terms:

By clicking OK, you agree to the following:

1. *You have the right to decompile, reverse-engineer or otherwise infringe on our patents and copyrights as you see fit under the spurious notion of "security," even though you'd sue our brains out if we reverse-engineered your products, like, say, the formula to Coke, Oreos or Prozac. Furthermore, this applies only to small software companies like us, because you'd never dream of asking the same of Microsoft, even though you might have a very legitimate reason to want to know what security resides in Windows XP.*

ALEX TORRALBAS owns a small software development company in New York. Contact him at **alext@atc-software.com.**

2. *You have the right to run as many copies of this as you want without our being able to do a thing about it, because we have no legal recourse except to contact our lawyer cousin to request the right to audit your facilities (which are spread out over 15 countries). He will face both your in-house legal counsel and your high-priced law firm, Big, Nasty and Brutal LLP. We relinquish the right to deactivate software that's being misused or otherwise enforce whatever feeble rights we had to start with.*

3. *Everything you've read above is utterly meaningless, since "click-wrap" contracts were never really enforceable in court anyway, and this one is even more watered down and forces us to use the venue of your choosing for legal disputes, which, last time we checked, is Bangalore, India.*

4. *We stay in business only by being able to collect support and maintenance contract fees, but you will have the right to rewrite our business plan because we all know software developers are a bunch of weasels who eat their young — per Frank Hayes* ["Coming Retractions," The Back Page, Jan. 7] *— and we deserve this.*

5. *If we sue, we'll pay for everything — legal fees, court costs, that executive buffet in the boardroom, whatever. Not that it's likely to get that far, since you'll insist that we waive our legal rights and submit to arbitration anyway.*

6. *And finally, we like you. We really do. Please accept our apologies in advance for any implied self-worth or pride we may have expressed in ourselves, our company, our product or anything else that challenges your "rights" as a "customer" or that promoted our crazy belief that we have any of our own.*

Civil law is really a battle of who can afford the most lawyer time. The goal behind UCITA was to create an enforceable set of rules and mechanisms by which we small fry can at least get the semblance of a level playing field. A fair law with real legal authority is greatly needed — as is the small fry's point of view. ◗

READERS' LETTERS

'Who' Says Linux Is Cure?

"I CAN'T Explain" how Nicholas Petreley managed to "Join Together" an article that so captured the "Amazing Journey" of "My Generation" in computing, and had some fun in the "Bargain" [" 'Get Back' to IBM," Technology, Feb. 25]. "It's Hard" to do that. He had to "Dig" for some of the references. But do you really think IBM and Linux are the "Miracle Cure"?

Chris Kotting
Columbus, Ohio

Cable Clarifications

IN "THE Cables That Bind" [Technology QuickStudy, Feb. 25], the author stated that with twisted-pair cable, "The twisting keeps the two wires as close together as possible so both wires experience the same total amount of interference. If the wires simply ran parallel, they would be significantly more susceptible to noise and interference." I don't think this is quite correct. You don't twist the wires to keep them close together; you twist them to reduce interference from capacitive coupling. When a wire passes through a magnetic field generated by an electrical device such as a motor, the magnetic field causes a voltage to be generated in the signal wire by what is typically known as capacitive coupling. Twisting the wires cancels out most of the induced voltage (interference). As an engineer with many years of experience in designing low-voltage signal wiring in hostile locations, I have seen firsthand the difficulties in ensuring a clean signal and reducing interference from large electrical devices.

Lyle Mariam
President, FlowSoft Inc.
St. Charles, Mo.

Editor's note: *Mr. Mariam makes an excellent point. The error was introduced by an editor trying to better explain differential signaling. In addition, we said that a shielded twisted pair has a rubberlike covering. In fact, it is surrounded by a metallic foil or braid.*

Nothing to Brag About

I READ WITH interest Sanjay Kumar's comments on why CA's reputation in the marketplace is less than desirable ["Q&A: CA's Sanjay Kumar on Customer Relations Problems," *Computerworld.com*, Feb. 27]. He cited poor acquisition management as one reason. But sweeping changes as a result of acquisition have been a fact of life in this industry for a long time.

As a longtime CA user, my experience has taught me that CA regards the needs of its legal department above those of its customer base. Kumar's own comments seem to bear this out when he says, "At one time, we had many, many pieces of customer litigation. We didn't lose any." Incredible. In a forum to highlight CA's rededication to its customers, he actually brags that CA never lost a lawsuit. Sure doesn't inspire me to welcome my CA rep with open arms.

Lee Kimball
Falmouth, Maine

More to Story Than H-1Bs

WHEN THE economy was much better, many tech workers thought the H-1B visa was a good idea, since it aids in improving technology and may have put U.S. companies ahead in global competition because they could hire the best. However, recently I have seen an increase of criticism in your Readers' Letters column. For those now unable to find jobs, the H-1B program may be partly to blame, but I believe it's more a combination of the higher competence required in the marketplace and the bad economy we are in. The technical field has corrected itself, and not many can dictate high pay anymore.

This doesn't mean H-1B workers are cheaper. Companies that hire H-1Bs have to pay legal fees, go through labor certifications and bankroll return flights.

Devan Salem
Little Falls, N.J.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

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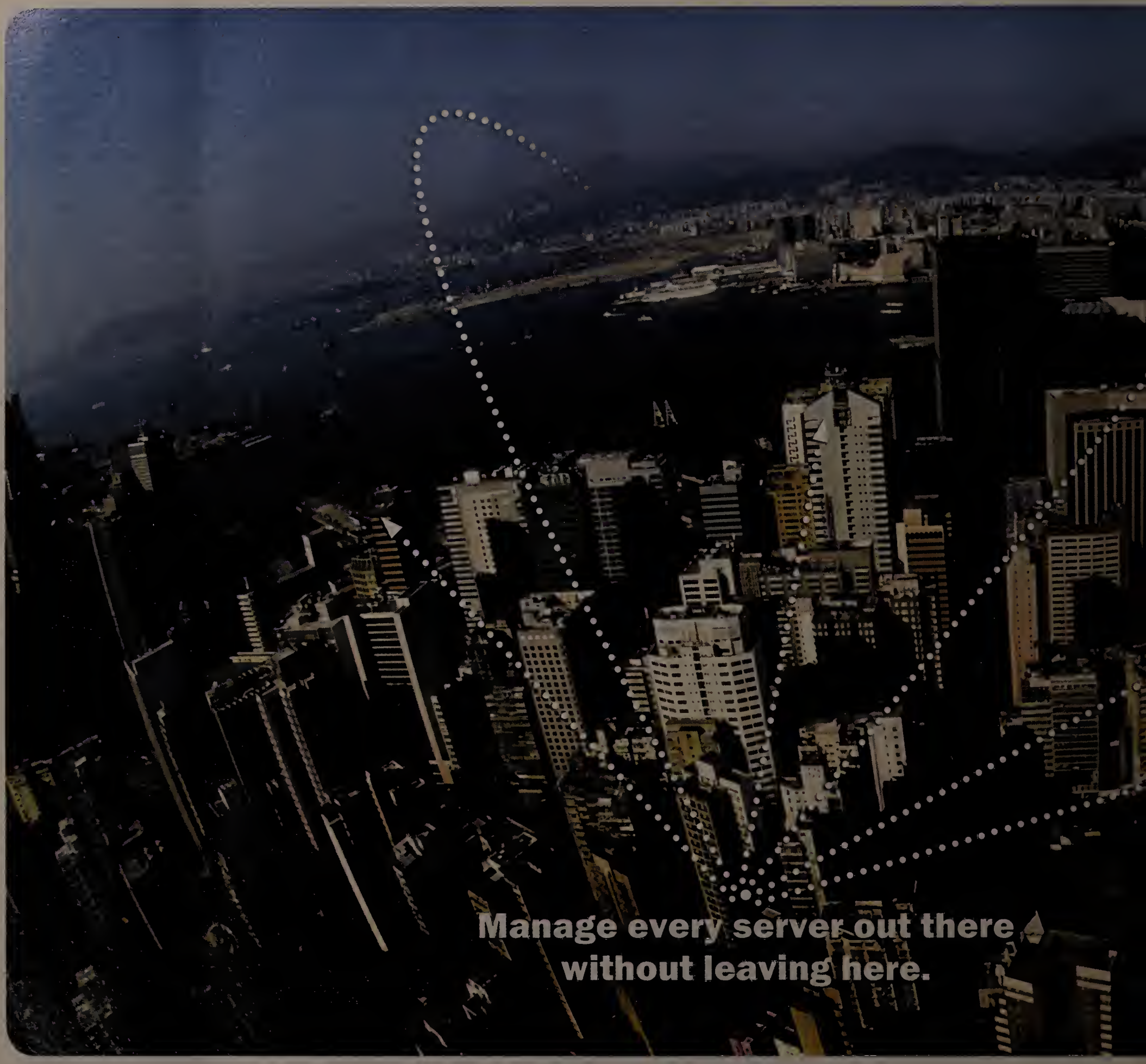

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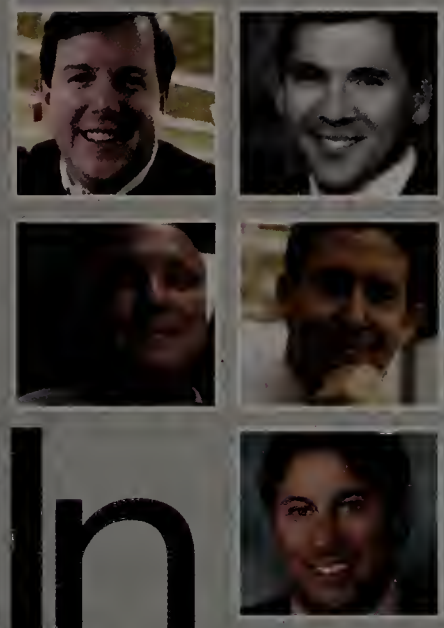

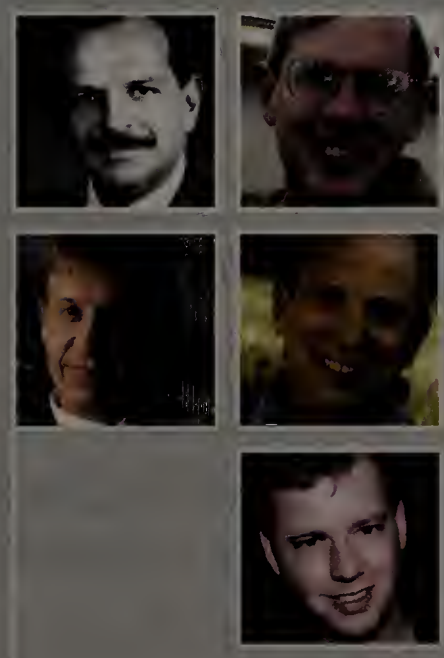

MARCH 11, 2002

When you left the office last night

you worked for a Midwest-based enterprise humming nicely along with ten accounts. When you walked in this morning, you were greeted by an e-mail announcing that you just landed a new piece of business—which happens to be bigger than those same ten accounts combined.

What's at the top of today's to-do list? Figure out how to expand your supply chain and create distribution channels to service all of your client's retail locations around the world. And could you do it by tomorrow, thank you?

Hopefully, you've got an infrastructure that's built on technology that works around *your* needs, not the other way around. It should be standards-based, so you're limiting your risk. Adaptable, so you can quickly adjust to change. Reliable, so you're up and running without a hitch.

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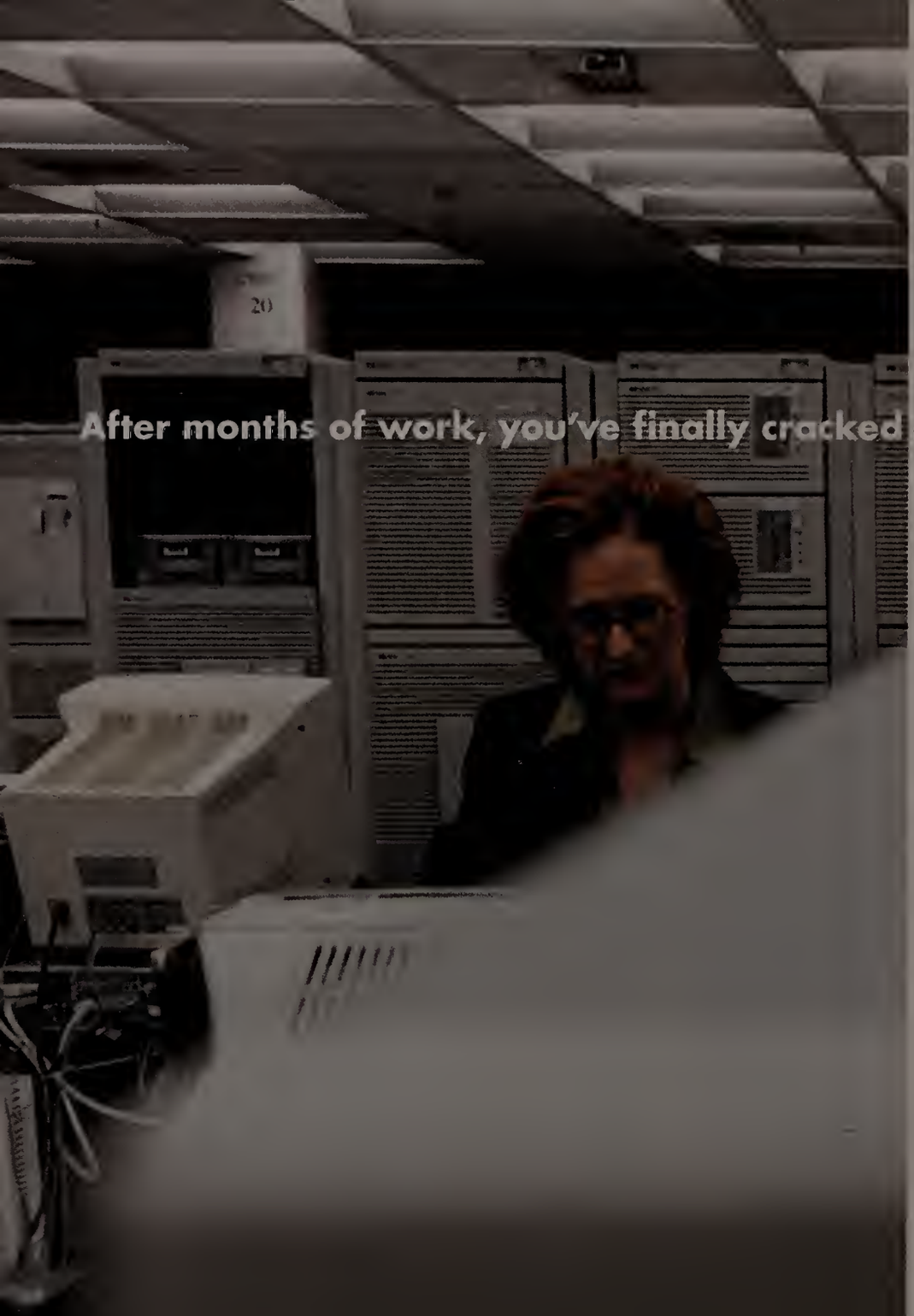

After months of work, you've finally cracked the consolidation of your three dota centers into one, when word comes down that you are about to buy your largest overseas distributor, adding two more dota centers to the already complex equation. Okay, now whot?

In order to stoy competitive in an environment like this, you have to be able to reoct quickly ond decisively in the face of sudden change. It would help if your infrastructure were open, resilient and manageable enough to adapt when you need it to. And the only way that's possible is if the infrastructure is built to work around *your* needs, not the other way around.

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Michael J. Ragunas

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Malcolm C. Fields

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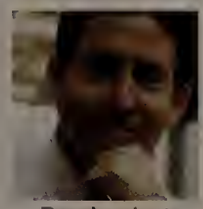
14 GFInet Inc. designed a system that allows for online trading of financial and commodity derivatives.

15 FedEx Corp. gave customers a Web-based guide to help them navigate the fast-paced world of international shipping.

16 Wesco Distribution Inc. developed a system to let its salespeople directly access the finished-goods inventory systems of its major suppliers.▸


Russ Lambert

18 Galactic Ltd. designed a way for its clients' employees to earn rewards for their money-saving ideas.

19 Corning Inc. turned the standard ERP model upside down by first listening to its operations people, and then picking a technology.

20 Lenox Inc. saw its sales skyrocket after embarking on a do-it-yourself Web site update.

EDITOR'S **NOTE**

Each year, *Computerworld* casts a spotlight on the individuals leading the IT industry today. We call this elite corps the Premier 100 IT Leaders.

When choosing these honorees, we look in particular for individuals using technology to solve critical business problems. And we're always intrigued with the projects these leaders dream up, sell to their executive boards and ultimately make happen. So this year, we decided to take a closer look at the most innovative of the projects, showcasing the companies and IT leaders that have shown that technology done right can deliver real business value – the Premier 100 Best in Class awards.

To select the winners, *Computerworld* editors reviewed the most successful projects of our Premier 100 IT Leaders for 2002. We looked for projects that demonstrated measurable payback and that were strategically important to the business and customers. Once the field was narrowed to 25 finalists, a panel of industry experts reviewed the projects.

The panel consisted of Jim Jones, managing director of The Information Management Forum; Charlie Feld, founder, CEO and president of The Feld Group; Priscilla Tate, executive director at Technology Managers Forum; and Thornton A. May, chief psychographer and futurist at Toffler Associates Inc. From those judges' evaluations, we chose 10 Best in Class winners.

On the following pages, you'll find case studies of these winning projects describing the technology, business payback and lessons learned. We hope their stories will inspire your own innovative technology project.

– Ellen Fanning

Transactio
Ties Sales C

BY CAROL SLIWA

Project objective

Through in-store kiosks, Staples Inc. had already given shoppers the option of ordering merchandise from its Staples.com Web site and paying for it with their credit cards. The in-store access-point project involved making system changes to let those customers consolidate their Staples.com and in-store purchases into one transaction and pay with cash, check or credit card at the cash register.

As part of the project, Staples built a custom-configuration system that customers can use to design their own PCs at the in-store kiosks and on the Staples.com Web site.

The office supplies retailer also had to tweak the system so it could detect whether customers are using in-store kiosks so their orders can be held held until payment is received at the cash register.

Customers ordering merchandise at in-store kiosks print out a ticket with a bar code, which is scanned at the cash register. The cash register pulls the kiosk order information from the back-end order management system. The register then sends the payment information to the back-office system so that the order and payment can be joined.

The project was started in early 2000 and completed in the spring of last year. Staples made investments in software development, additional kiosks and site and network capacity to support volume.

Technology

Staples modified the Microsoft Corp. Commerce Server software powering its Staples.com site, its IBM AS/400-based custom-built order management system and its Windows NT-based point-of-sale (cash register) system, according to Michael J. Ragunas, chief technology officer at Staples.com. The IT department also had to build capabilities into its back-office systems to reconcile orders and payments and performed integration work to permit communication between systems that weren't previously connected, he says.

To enable customers to build their own PCs, Staples used a configuration tool from Calico Commerce Inc. in San Jose. The tool is based on San Jose-based BEA Systems Inc.'s

BEST IN CLASS

at a glance

COMPANY Staples Inc.

LOCATION Framingham, Mass.

WEB www.staples.com

PROJECT LEADER Michael J. Ragunas

BUSINESS Supplier of office products and services

ANNUAL SALES $10.7 billion

SIZE OF IT DEPARTMENT About 500

n Tool
Channels

CHRISTOPHER HARTING

WebLogic application server running on Windows NT.

Staples built an XML interface to enable the Calico tool to interact with Staples.com, which presents the information to customers via Microsoft's Active Server Pages. Completed orders are sent to the manufacturers via electronic data interchange from Staples' back-office systems.

Business benefits

When customers walk into any of Staples' more than 1,100 retail stores, they now have access not only to the 7,000 to 8,000 stocked items but also to the 50,000 offered through Staples.com. "We are offering a much broader assortment to customers in the stores," says Ragunas.

"The fact that you can consolidate your purchases and choose multiple ways to make purchases in the store puts them a level ahead at this point," said Geri Spieler, an analyst at Stamford, Conn.-based Gartner Inc.

Bottom-line payback

Staples has logged close to $4 million in sales per week on the kiosks and eliminated its inventory of PCs in more than 200 stores, Ragunas says. With the custom-configuration system, customers get exactly what they want and Staples has reduced its PC inventory costs and freed space for other products, he adds. Customers using Staples.com in stores are more likely to also order merchandise through the Web site from their homes or offices. "We know that customers who shop with us in multiple channels spend more with us overall — 2.5 times if two channels, 4.5 times if three," says Ragunas.

Lessons learned

"We've learned that integration is hard work," says Ragunas. "There are some technologies out there that can help, but it's still hard because most of what you're working with is legacy, and you have to figure out ways to make what you already have talk to each other."

A Linux Installation Of Enterprise Proportions

BY **TODD R. WEISS**

Project objective

Burlington Coat Factory Warehouse Corp. needed a new operating system so its stores could deploy new applications and redeploy existing applications and services to take advantage of a Web-based architecture.

At the same time, the company wanted to reduce costs and capitalize on its long-standing success with Unix, says Michael Prince, vice president and CIO. After comparing Linux, Windows and Solaris, Burlington Coat Factory chose Red Hat Linux for use in more than 1,250 systems at 250 stores. The project was completed in 2000 in just over four months and showed the viability of Linux for widespread use across an enterprise, Prince says. The company also achieved its goal of setting up an infrastructure that allows the use of Web-based applications.

BEST IN CLASS

COMPANY Burlington Coat Factory Warehouse Corp.

LOCATION Burlington, N.J.

WEB www.coat.com

PROJECT LEADER Michael Prince

BUSINESS Discount retailer of coats, clothing, household goods and other consumer items

ANNUAL REVENUE $2.4 billion

SIZE OF IT DEPARTMENT About 120

Technology

The Linux boxes are desktops and servers, as well as stand-alone boxes for back-office functions like shipping, receiving and other order processing. Linux is now deployed on the back end at all Burlington Coat Factory stores. Because of the project's success so far, Linux will be deployed during the next few years on the front end in point-of-sale systems, says Prince.

Business benefits

Because the IT team had years of experience with Unix, the transition to Linux was a natural one, says Prince. "Linux is as much Unix as anything," he says. "A lot of our choice of Linux was really a choice of Unix over Windows. We had a technical team that was really comfortable with Linux."

And because the operating system is inexpensive, requires the purchase of only one copy and uses standard industry hardware, the risks were minimal. If the software didn't work as advertised, the company could have kept the hardware and bought another operating system, says Prince. Another benefit, he says, is that Linux environments typically have fewer virus and security problems than their counterparts, thus reducing support costs.

The move to Linux was an evolution for Burlington Coat Factory, says Dan Kusnetzky, an analyst at market research firm IDC in Framingham, Mass. The company was previously a poster child for SCO Unix, so the Linux installation was realistic and easy.

"This is one place where Linux is beginning to shine, in retail in a replicated environment," he says. "Burlington was one of the earliest examples, and we're seeing more of them now." Other retailers using Linux include Amazon.com Inc., The Home Depot Inc., Boscov's Department Stores and Lawson Inc. convenience stores in Japan.

Bottom-line payback

By choosing Linux over proprietary operating systems, costs were greatly reduced, says Prince. There were no high licensing fees, and remote administration is easier. "The concept of logging in to a remote system and running programs like you are [a local user] is the biggest win," Prince says. Another huge payback is reliability. "It's a very stable and efficient operating system. It doesn't crash," he says.

Lessons learned

Selling the project to upper management wasn't too difficult, says Prince. "The fact is, if Linux had required proprietary hardware that would not have been recyclable . . . then it would have been a tough sell, given that at the time, no major retailer" had adopted the then-fledgling Linux, he says. ◗

Financial Manager Speeds Up Transactions

BY **KEVIN FOGARTY**

BEST IN CLASS

COMPANY State Street Corp.

LOCATION Boston

WEB www.statestreet.com

PROJECT LEADER John A. Fiore

BUSINESS Provides financial services to investment managers, corporations, mutual fund companies, public pension funds, unions, nonprofit organizations and individuals

ANNUAL REVENUE $3.6 billion

SIZE OF IT DEPARTMENT 3,000 worldwide

Project objective

Wall Street trading systems may seem high tech, but the back-end processes required to complete a trade are a lot murkier — and a lot lower tech — than you might think.

Many traders rely on service providers like State Street Corp. to do the accounting and settlement and financial transfers required to actually complete a sale. But they frequently notify those providers of a trade with a fax — often with critical information missing. In the past, State Street had to delay more than half the settlements so a staffer could confirm, by phone or fax, information missing from the original notice, says John A. Fiore, State Street's executive vice president and CIO. That much manual intervention was hugely expensive in an operation that makes up as much as two-thirds of State Street's total revenue stream.

The company's Financial Transaction Management (FTM) system now automatically processes more than 80% of the requests that flow through it by identifying the source of the fax and automatically filling in missing information from a database of information on traders. Fewer than half of all trades go through FTM at this point, but the system will be complete in the first quarter of next year.

Technology

The system was custom-coded in Java, using Oracle Corp. databases running on Sun Microsystems Inc. servers. It was tied to underlying processing systems on the mainframe using IBM's MQSeries message-oriented middleware for communication among applications.

Business benefits

FTM helps put State Street in the forefront of two movements on Wall Street, according to Tim Lind, an investment management practice analyst at Needham, Mass.-based TowerGroup.

The first is a push to automate the settlement process to the point where trades can be finalized one day after they're made, also known as T+1. The second is a move to outsource automation to companies like State Street so brokers don't have to pay the cost of automation themselves.

Although State Street launched the system to improve its internal efficiency, Lind says FTM puts the bank in a prime position to fulfill the need for outsourcing and automated trade completion.

Bottom-line payback

Of the trades that are now processed through FTM, less than 20% must be handled manually — which takes more time and incurs costs as a result of the delay of the trade and the staff needed for intervention.

"Even in its early stages, it's showing tremendous business value, even though there are so far no metrics from the operations side of the house," Fiore says. "That it has come off as scheduled and we haven't had problems deploying it has been a tremendous plus for the IT organization."

Lessons learned

Upfront preparation work is never wasted. Even though State Street designed the project to be used in either a centralized or distributed way by business units and prepared for either eventuality, Fiore says more upfront work with the specific business units would have made the rollout even more effective. ◗

Fogarty is a freelance writer in Sudbury, Mass.

Supply S
Grows Sm

BY MARC L. SONGINI

BEST IN CLASS

at a glance

COMPANY HON Industries Inc.

LOCATION Muscatine, Iowa

WEB www.honindustries.com

PROJECT LEADER Malcolm C. Fields

BUSINESS Manufactures office furniture and gas and wood-burning fireplaces

ANNUAL REVENUE $2 billion

SIZE OF IT DEPARTMENT Approximately 100

Project objective

The old legacy systems at HON Industries Inc. were unable to accurately measure the capacity of the manufacturer's warehouses. That lack of understanding led to errors like sending more products to a particular facility than it could store. To address the problem, a new system was designed to be more flexible and to take into account more variables, such as the size of the trucks and warehouse dock schedules.

CIO and Vice President Malcolm C. Fields says the optimization system has cut distribution costs, improved the timeliness of shipments and reduced the amount of finished inventory that the manufacturer carries to "unbelievable lows."

The implementation team achieved its results despite considerable obstacles, including a shake-up in company structure and management and resistance from employees who were wedded to traditional processes.

HON Industries began its advance-planning and scheduling system project in October 1999 and wrapped it up in March 2001 at a cost of about $2 million. Though the project ran past its original deadline by six months, it also far exceeded the expectations of the project team, says Fields.

Technology

The project, which involved replacing legacy distribution mainframe code, used software from SynQuest Inc., a Norcross, Ga.-based maker of supply chain management software. The SynQuest application allows HON to take a product order, factor in shipping and scheduling variables, then decide which factory could build and ship the product for the least amount of money.

Business benefits

What's unique about this sort of a rollout is the focus on logistics and transportation factors, says Steve Banker, an analyst at ARC Advisory Group Inc., a Dedham, Mass.-based consultancy. Similar deployments typically focus on different parts of the supply

ystem arter

MICHAEL KREISER

chain, such as sourcing or procurement, he says.

Bottom-line payback

Without offering exact numbers, Fields says the new system has contributed to a drop in freight costs from 6.5% to 5.8% as part of the firm's overall sales revenue. Scheduling accuracy has improved by 20%, and there are now 19 inventory turns a year, up from 16, he says.

Lessons learned

One major challenge to the project was the constant shifting of business processes at HON, which meant projects had "to be implemented in short, intensive phases," says Fields.

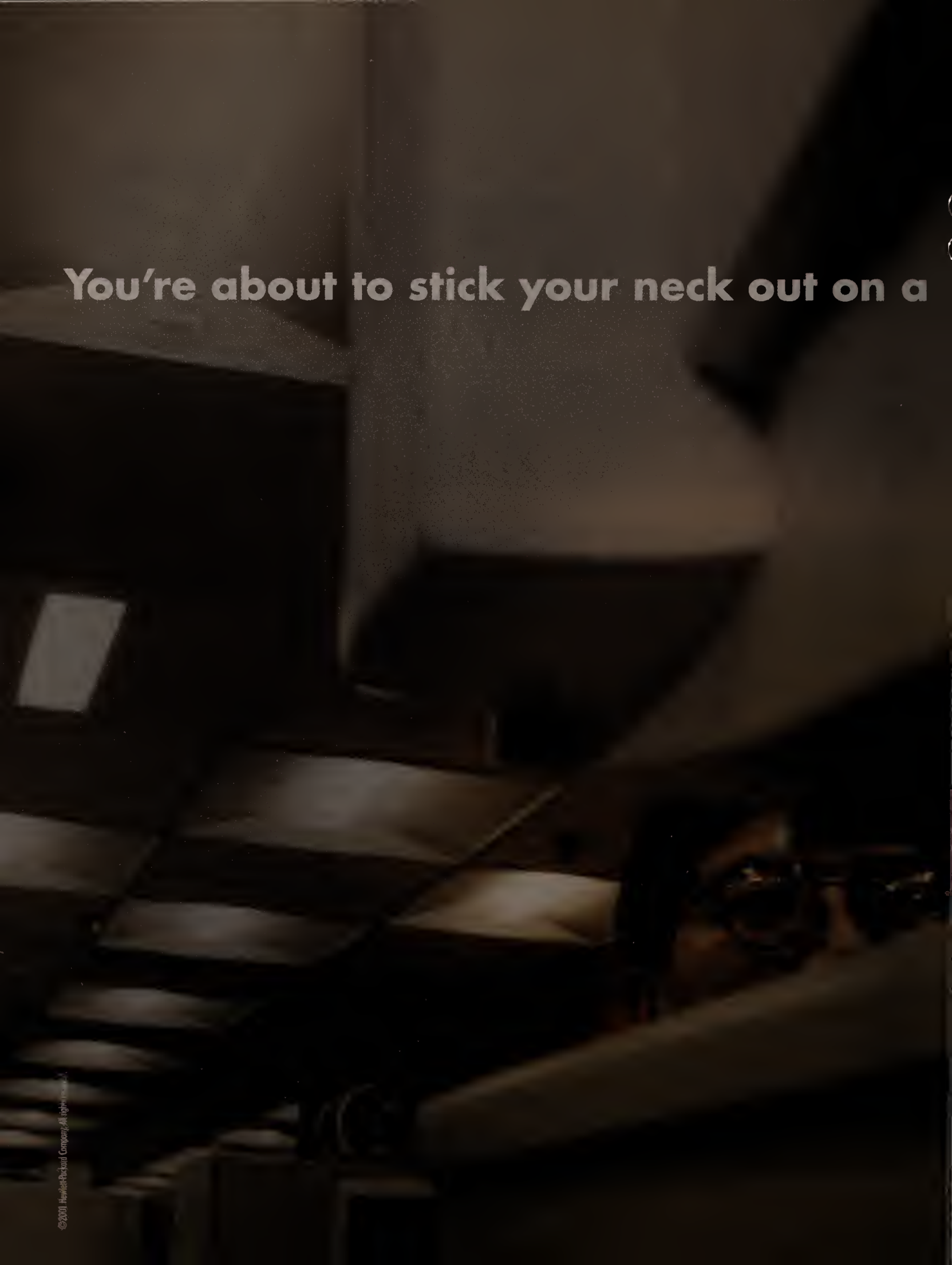
For instance, during the middle of the rollout, the company was split into two separate divisions, and the president of the original operating company was replaced. The business executives who signed off on the project were gone, says Fields.

"We had to go out and rewin some hearts and minds," he says. Although work never slowed, for about 30 days the project's fate was uncertain. In the end, project advocates successfully educated the new executive team, and the rollout was a success.

Fields says he learned just how tough it is to persuade people to change their way of thinking. "Never underestimate the difficulty of shifting a paradigm," he says. ◗

The optimization system has cut distribution costs, improved the timeliness of shipments and reduced the amount of finished inventory the manufacturer carries to "unbelievable lows."

MALCOLM C. FIELDS (LEFT)



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server decision that will finally update your data center. The problem is, it's hard enough predicting what will happen next quarter, let alone next year. So how can you be confident that the infrastructure choices you make today are choices you can live with tomorrow?

One option now has to include the new HP server rp8400—a rack-optimized breakthrough designed specifically to help you manage the enormous infrastructure demands generated by today's constantly evolving business environment.

It's small enough to fit two to a rack yet provides unprecedented power and flexibility in a mid-range server. In fact, we've made room for up to 16 processors, setting new standards in the category for both performance density and scalability. The kind of power you need to more easily manage and control workload allocation.

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Infrastructure: it starts with you.

Online Tool For Trading Opens New Channels

BY JULEKHA DASH

Project objective

The trading desk at GFInet Inc. used to operate via data distribution screens that showed tradable prices but didn't allow customers to conduct online transactions. The infrastructure, implemented in the 1980s, was outdated and had limited capabilities, says CIO Russ Lewis.

GFInet's FX Options project was designed to enable online currency trading via a virtual private network or the Internet.

The options market "traditionally trades over the telephone," says Lewis. The FX Options application enabled GFInet, a subsidiary of brokerage services provider GFI Group Inc., to reach new customers and increase transaction volumes by 20% to 30% by offering another sales channel. The system was designed to manage simpler trades, freeing brokers to conduct more complex, high-value transactions.

BEST IN CLASS

COMPANY GFInet Inc.

LOCATION New York

WEB www.gfinet.com

PROJECT LEADER Russ Lewis

BUSINESS Provides online trading services

CLIENT BASE More than 500

SIZE OF IT DEPARTMENT 95

Technology

GFInet now has "a state-of-the-art technology platform" that enables online trading of financial and commodity derivatives, says Lewis. The Java-based system runs on an Oracle Corp. database and uses Los Altos, Calif.-based Talarian Corp.'s SmartSockets for messaging. FX Options is being rolled out to bank trading rooms worldwide and to the firm's internal brokerage desks in New York, London, Tokyo and Sydney.

Business benefits

The FX Options project makes GFInet "more of a one-stop shop" for financial services, says Andrew Koslow, chief operating officer at San Francisco-based brokerage firm The Financial Cafe.com. GFInet is consolidating "different trading technology that you don't typically find among other providers all in one house," says Koslow. What's unique isn't the online currency options capability, but that it's offered along with the company's product suite, he says.

Bottom-line payback

With only a portion of the company's existing client base using the new system, top-line revenue has already increased 20%, according to Lewis.

GFInet plans to eventually measure success in terms of market-share growth, profitability and average billing per broker, he adds. GFInet has gained a significant increase in trading volumes by making it easier for customers to trade with the firm, Lewis says. The electronic trading platform has increased customer interest in GFI products and made customers more confident in the company's technology capabilities, he adds.

Lessons learned

GFInet's FX Options project has shown how first-rate technology can enable a company to grow, says Lewis. The company now sees new opportunities to automate other products and expand offerings as a result of the project's success.

At GFInet, no decisions are made until all the brokers, product managers and business analysts come to an agreement, says Lewis. IT was able to overcome brokers' initial hesitation by continuing to solicit their input throughout the design and testing process.

"We stressed that far from disintermediating brokers, the electronic trading platform would enhance their efficiency and free their time for more complex and more profitable trades," he says. ◗

Dash is a freelance writer in Lewes, Del.

Web Guide Remits Rules Of Shipping

BY **LINDA ROSENCRANCE**

Project objective

It was the late 1990s, and FedEx Corp. customers were clamoring for a quick and easy way to navigate the fast-paced world of international trade.

So Robert B. Carter, executive vice president and CIO at FedEx, assembled a team and set about developing FedEx Global Trade Manager, a free, Web-based guide to international shipping for small and midsize businesses.

"We designed this around the customers' needs," says Karen Rogers, FedEx's vice president of e-commerce marketing, who worked with Carter on the project.

The project, which began in 1997 and was launched in August 2000, was finished on time and on budget. It was originally used by customers arranging shipments to or from the U.S., Canada, the U.K., Hong Kong and Puerto Rico. Since then, FedEx has expanded the service to 20 countries.

Technology

FedEx designed its own Web-based system and integrated it into an Oracle Corp. database. The application helps shippers understand global trade regulations and prepare the appropriate import or export forms based on the commodity being shipped and the countries of origin and destination. It also alerts users to restrictions on shipping certain commodities, lets them know if a country is under embargo and provides information on special licensing requirements.

In February, Global Trade Manager began offering shippers a tool for determining government charges and fees for international shipments, including import duty, value-added tax and excise duty, so they can estimate the total landed costs of their packages.

Business benefits

"Global Trade Manager makes it easier to ship internationally, which can be an intimidating experience," Carter says.

"It allows customers to do import/export documentation in a straightforward fashion," he says. "Millions of Web users have access to FedEx.com, and we ship tens of thousands of international packages a day from [the Web site]. We are giving them access to technology they wouldn't otherwise have."

Donald Broughton, a transportation analyst at A.G. Edwards & Sons Inc., a consultancy in St. Louis, says that although FedEx was the first company to offer such a service, other companies, including Atlanta-based United Parcel Service Inc., now have similar tools.

Although Global Trade Manager is offered in only 20 countries, Broughton says the addition of the taxes and duties estimator makes the application more valuable to customers.

Bottom-line payback

Memphis-based FedEx continues to measure the project's success by tracking the increase in the number of customers who use Global Trade Manager as well as the growth of international shipments, Carter says.

Currently, 70,000 registered customers use the services provided, and that number is growing 300% year over year, according to Rogers.

Although Carter won't release the project's financial impact on shareholders, he says it is "among the most profitable at FedEx."

Lessons learned

Technology projects that are laser-focused on customer needs are the ones that win approval from the executive board at FedEx. In fact, because it increased international capabilities and offered payback to customers, the project was well-received throughout the company from the start, Carter says. ◗

BEST IN CLASS

COMPANY FedEx Corp.

LOCATION Memphis

WEB www.fedex.com

PROJECT LEADER Robert B. Carter

BUSINESS Shipping, transportation, information and logistics company

ANNUAL REVENUE $20 billion

SIZE OF IT DEPARTMENT More than 5,000

E-Procure S
Talks Back in R

BY JAIKUMAR VIJAYAN

BEST IN CLASS

at a glance

COMPANY Wesco Distribution Inc.

LOCATION Pittsburgh

WEB www.wescodist.com

PROJECT LEADER Russ Lambert

BUSINESS Distributes electrical products and other maintenance, repair and operating supplies

ANNUAL REVENUE $3.9 billion

SIZE OF IT DEPARTMENT 87

Project objective

Wesco Distribution Inc., a $3.9 billion Pittsburgh-based company, is one of the country's largest distributors of electrical products and other maintenance, repair and operating supplies to large companies. Wesco stocks more than 140,000 items from hundreds of manufacturers. In addition, its customers order more than 900,000 other maintenance, repair and operating items from Wesco that the company doesn't stock.

Until recently, when Wesco sales representatives received orders for such nonstocked items, they had to call the manufacturers directly or check their Web sites for pricing and availability. That information was then relayed back to the customer in a separate phone call. Although orders for nonstocked items account for only 20% of Wesco's business, gathering information on those purchases for customers took 40% of the sales force's time, says Russ Lambert, Wesco's director of e-commerce.

Technology

To address the problem, the company decided to dock its logistics systems with those of its major suppliers. But Wesco had to find a standard way to query and pull information from heterogeneous supplier systems over the Web and into its own 20-year-old, proprietary, green-screen systems. That was the most difficult part of the project, Lambert says.

The company built an Internet gateway with a common set of doorways that created inbound and outbound pathways to the legacy system. XML code was written both to pull data into Wesco's legacy system and to integrate supplier systems with the gateway. Wesco used Austin, Texas-based Vignette Corp.'s content management software and San Jose-based BEA Systems Inc.'s WebLogic application server as its core technologies for the project.

Business benefits

Since the e-procurement system went live in June, Wesco's 1,000 salespeople in 400 locations have been able to directly access the finished-goods inventory systems of major suppliers. Now, while a customer requesting nonstocked items is still on the line, a salesperson can send a query over the Web to the supplier's system with a one-button application, receive an an-

System Real Time

LARRY RIPPEL

swer in about 10 seconds and communicate that to the customer.

Bottom-line payback

Wesco's new system has cut phone costs by reducing the duration of each call by at least six minutes. It has also increased sales of nonstocked items and saved an enormous amount of time for salespeople, Lambert says. He estimates that the company could save nearly $12 million annually if the new system saves 1,000 salespeople just three hours per week (at $75 per hour).

"More and more, distributors are moving away from stocking inventory to becoming supplier reps," says Andy Chatha, an analyst at Dedham, Mass.-based ARC Advisory Group Inc. Wesco's e-procurement system provides the visibility into supplier systems that allows distributors to carry less inventory and thereby cut costs, he adds.

Lessons learned

Considering that it has cost about $400,000 to date to implement the system, demonstrating return on investment has been a "slam dunk," says Lambert. The system is also bound to have a positive impact on customer perception, he says. Because of Wesco's system, customers know when they call that they're making a real-time order against in-stock supplies, Lambert says. "It has been a great proof-of-concept about the power of direct linkage in the supply chain," he says.

Considering that it has cost about $400,000 to date to implement the system, demonstrating return on investment has been a "slam dunk."

RUSS LAMBERT (LEFT)

Intranet Idea Box Pays Out Big

BY KATHLEEN MELYMUKA

Project objective

Galactic Ltd. IT Vice President Anthony Okrongly recently harnessed Web technology to automate and scale up the traditional employee suggestion box.

Galactic offers trips, merchandise, gift certificates and other noncash incentive programs that firms can use to reward their employees. It designed the Ideaworks program as a way for its clients' employees to earn rewards by submitting cost-saving or revenue-generating ideas via the Web — an intranet suggestion box that pays off.

The program had to be quick and easy to use and shepherd an idea through its many stages: creation, submission, evaluation, feedback, approval and reward. When the program was tested internally, for example, a Galactic employee showed that having all workers use a single type of pen would save thousands of dollars over time. The company gained the savings, and the employee received points to be redeemed for merchandise. When sold to clients, Ideaworks generates revenue for Galactic through the fulfillment of the incentive awards and administration of the program.

BEST IN CLASS

COMPANY Galactic Ltd.

LOCATION Arlington, Texas

WEB www.galacticmarketing.com

PROJECT LEADER Anthony Okrongly

BUSINESS Purveyor of corporate noncash marketing incentive programs

ANNUAL SALES Approximately $100M

SIZE OF IT DEPARTMENT Nine

Technology

Ideaworks was first piloted internally in the summer of 2000 as a paper-based awards program. In January 2001, Galactic's nine-person IT staff began designing a Web-based version using existing hardware, software and infrastructure. The Web version went live in March for Galactic's own employees to test and use, and development of Version 2 was outsourced to Bryte Software Design in Irving, Texas; dedicated infrastructure resources were installed at Galactic to support it. Version 2 can handle 100,000 registered participants in as many as a dozen separate client programs. By January 2002, the first clients were using Version 2.

The system is hosted on clustered Dell Computer Corp. server technology, with storage-area servers, Cisco Systems Inc. routers and content switches. It uses Cisco's new iSCSI technology as well as Microsoft Corp.'s development and hosting software.

Business benefits

Galactic is the first in its market to offer such a program, says Okrongly. Internal use of Ideaworks at Galactic has increased teamwork and improved communications, and internal savings alone have reached $2.3 million. Revenue from clients is expected to dwarf that amount, he says.

Bottom-line payback

Based on the $2.3 million savings minus development costs of less than $1 million and $180,000 spent on incentive awards, the in-house product alone has generated a return on investment of well over 200%, says Okrongly. Revenue for 2002, with client participation and the ensuing revenue from administration and awards fulfillment, is projected at $20 million to $30 million, for an anticipated ROI of 2,000% to 3,000%, he says.

"This project exemplifies what many small companies will have to do in order to create value for their customers using the Web," says Philip Anderson, professor of entrepreneurship at INSEAD, an international business school in Fountainebleau Cedex, France. Galactic's strength is partly its speed: "The company is moving fast and can pick off some significant customers before competitors show up," Anderson says.

Lessons learned

Starting small, staying on budget and gradually building as the concept proves itself financially eliminates resistance, says Okrongly. He also credits the use of Stamford, Conn.-based Gartner Inc.'s Gartner Institute Project Management model for the project's success. "When the going got tough, it made all the difference," Okrongly says.

ERP Plan Cuts Costs At Factories

BY MATHEW SCHWARTZ

Project objective

In the late 1990s, manufacturing operations at Corning Inc.'s display technologies division were aligned with customers on a regional level — for example, the plant in Japan served Japanese customers; the U.S. plant served U.S. customers. But when customers wanted more computer displays than ever, the business model wasn't scaling.

"As we looked at the plan, we learned that our existing model just wasn't cutting it," says Corning CIO and Vice President Richard J. Fishburn.

BEST IN CLASS

COMPANY Corning Inc.

LOCATION Coming, N.Y.

WEB www.corning.com

PROJECT LEADER Richard J. Fishburn

BUSINESS Provider of telecommunications equipment; glass for flat-panel displays, LCD laptop computers, TVs and VCRs; and optical materials for the semiconductor industry

ANNUAL NET SALES $6.3 billion

SIZE OF IT DEPARTMENT 1,100 permanent employees and 50 contractors

In 1999, Corning set about improving supply chain efficiency, but technology was the last aspect discussed. In fact, when brainstorming better models, Corning first asks managers to "listen to what their operational people are saying," says Fishburn. Only then are opportunities defined, followed by business benefits and, finally, mechanisms to determine whether goals were met.

Corning was a pioneer in putting business processes first rather than following the classic enterprise resource planning (ERP) philosophy of making business fit the technology. Jill Jenkins, an analyst at Current Analysis Inc. in Sterling, Va., says the old thinking was, " 'If I optimize one piece and optimize another piece, when I put it together, it will be optimal' — but it wasn't."

Technology

At Corning, the approach was different. In the case of display technologies, "we needed to create the virtual factory," says Fishburn. Display glass is manufactured in two stages: The melting process takes raw silica and produces sheets of glass, and then a finishing line cuts those down to various sizes. Since a melting line costs 10 times as much as a finishing line, Corning decided to keep its melting operations — one in the U.S. and one in Japan — but use its global finishing lines more strategically. Only then was technology assigned to solve the problem: a supply chain module was added to Corning's PeopleSoft Inc. ERP software.

"As we looked at the plan, we learned that our existing model just wasn't cutting it."

RICHARD J. FISHBURN

Business benefits

The project has stayed on schedule and under budget, and is paying for itself, even though the rollout won't be completed until next year, says Fishburn. And the project costs less than a new melting operation. "It used to take us five days to do the planning for tomorrow's production. Now we can do it in an hour," he says.

Bottom-line payback

Improved planning efficiency meant Corning didn't have to build excess capacity. And instead of using whatever inventory is on hand, which creates leftover glass that's expensive to dispose of, it can now manufacture only what's needed, in the most optimal sizes. Also, fewer orders have to be rushed to reach customers on time.

Lessons learned

Fishburn says he knew he had business sponsorship from the beginning. In senior management meetings, for example, one former critic "would very clearly articulate the fact that this was the premier project that exists for this division," he says. "As the CIO, your greatest success is to sit in the background and let your operating peers talk about their projects." ◗

Schwartz is a freelance writer in Arlington, Mass.

Lenox Inc.

A Do-It-You
Web Site U

BY MICHAEL MEEHAN

BEST IN CLASS

at a glance

COMPANY Lenox Inc.

LOCATION Langhorne, Pa.

WEB www.lenoxcollections.com

PROJECT LEADER Bob Palmer

BUSINESS Maker of china and fine collectibles

ANNUAL REVENUE $550 million

Project objective

Bob Palmer, vice president of IT at Lenox Collections, a division of Lenox Inc., set out with a team of developers to revamp LenoxCollections.com. Key drivers for the change were the need to reduce the number of clicks in the checkout process, more closely align the site with its other sales channels (namely its catalogs), provide consumers with more information about their purchases and update the site design.

Technology

Palmer says he didn't hit any technical snags with the project because he was confident that his own developers could build the new Web site. While he says he looked at bigger-budget Web portal software from Redwood City, Calif.-based BroadVision Inc. and IBM's WebSphere line, he chose instead to let his team use San Francisco-based Macromedia Inc.'s over-the-counter ColdFusion Web development tools.

"If you have experienced, talented Web developers, and we have, then it's not that difficult to do," Palmer says. "You have to ask yourself, 'Do I want to bring in an army of consultants at $150 or $200 an hour when the organization has very talented Web developers who understand our business and cost less?' "

The project budget was set for $105,000, with almost half of that figure slated for design. The design phase began last March and was completed in mid-May. The development phase took less than three months.

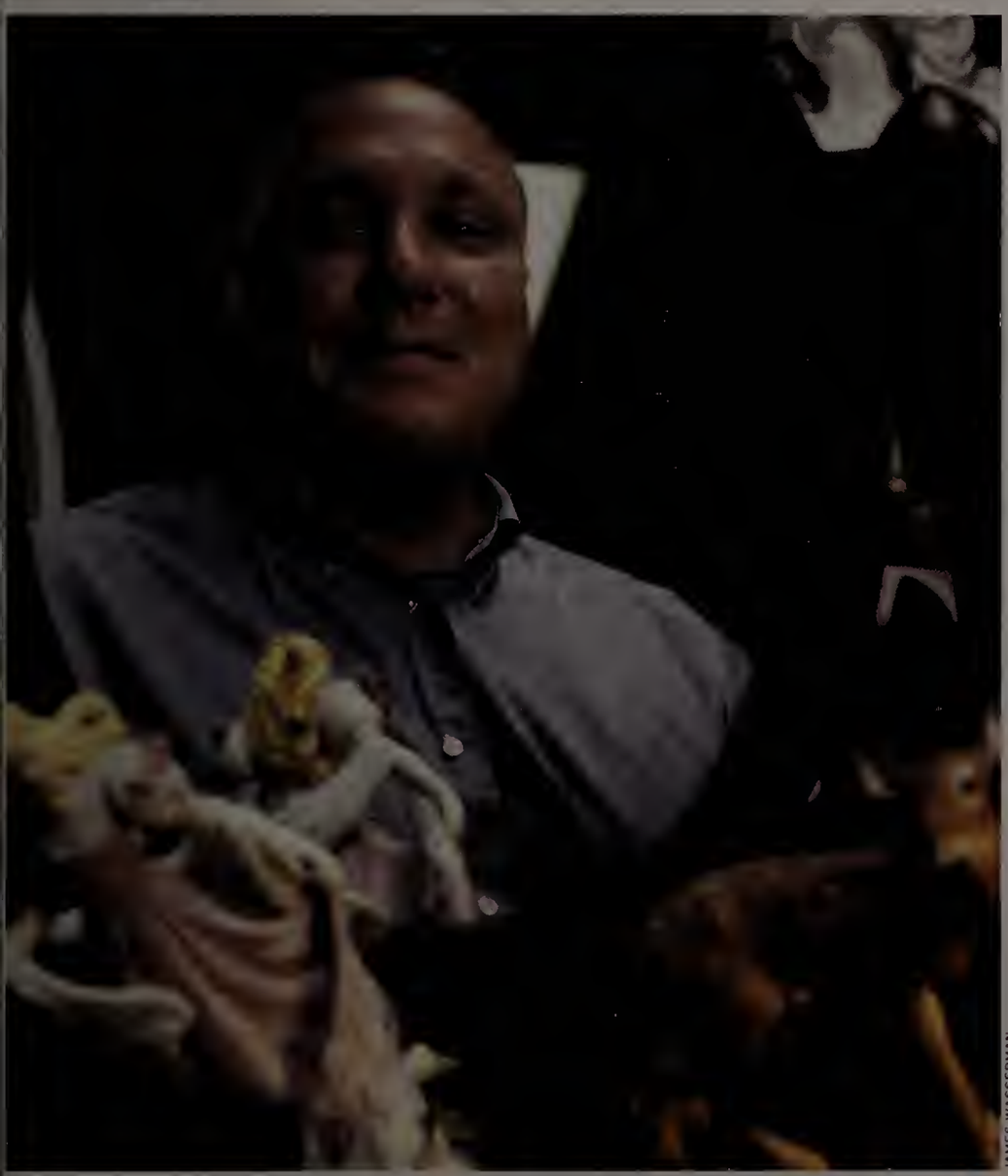
Business benefits

Once the job was finished, Palmer's team took that experience and applied it to other Lenox Web sites. He says that about 70% of the code used on LenoxCollections.com was reusable, allowing his team to put up a site for U.K.-based retailer Brooks & Bentley in less than three months. Palmer says his development team can now quickly implement new features when customers request them. "Now that we've got the basics right, additional features aren't difficult to add," he says.

Bottom-line payback

As for return on investment, Palmer says the work has already paid for itself. LenoxCollections.com saw a 115%

rself Update



JAMES WASSERMAN

sales increase in the fourth quarter of 2001, compared with the same period in 2000. Much of that was driven by a boosted browser-to-buyer conversion rate, up from 4.5% to more than 8%. And since the site's launch, Lenox has continued to add features, such as order status updates.

"The ROI comes when people use the site more and you complete more sales," Palmer says. "Sometimes you have to be practical and realize you get an ROI by delivering things your customers want."

Lessons learned

Palmer says he learned that Internet projects expose a lot more than just catalog offerings.

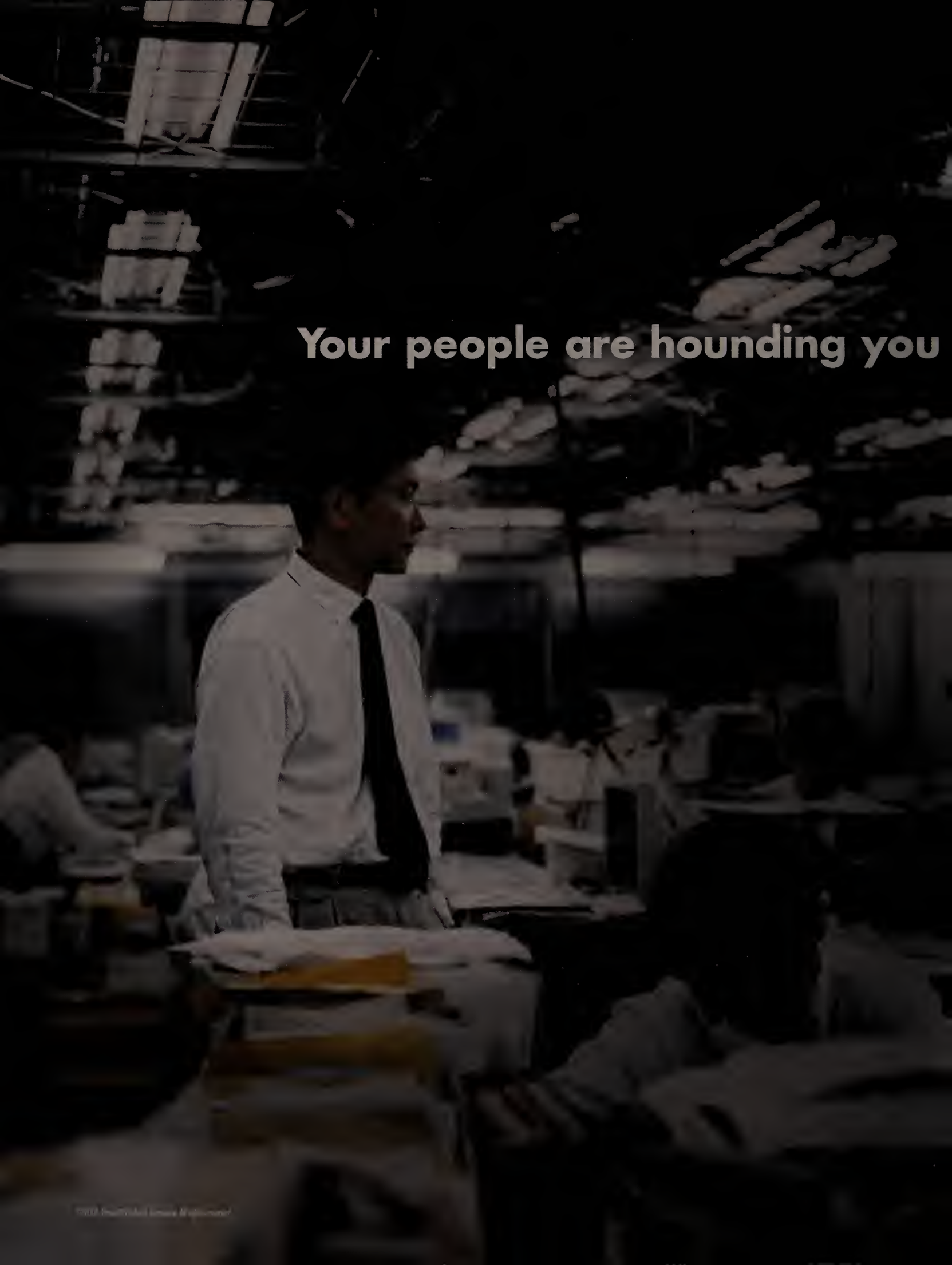
"Where you're taking phone orders, there's always been a veil — a human being — between a company's back-end systems and the customer," which has hidden a lot of system deficiencies, he says. "The Web opens up your business processes to the general public, and if those processes and systems aren't consumer-focused and clear, the deficiencies will be exposed to the world."

Palmer says Lenox also had to reestablish who needed to be in the loop when decisions were being made. Lenox needed to better address communication and project goals when members left or joined the development team.

"People need to know not only what they're doing, but why they're doing it and how it fits in with what others are doing," Palmer says. "It's basic stuff, but that's what tripped us up."

"Sometimes you have to be practical and realize you get an ROI by delivering things your customers want."

BOB PALMER (LEFT)


Your people are hounding you

for more storage space. Your support staff has just been cut. And you've already shot your IT budget for the year. You're not alone. The need for storage is skyrocketing, and more and more businesses are feeling the heat.

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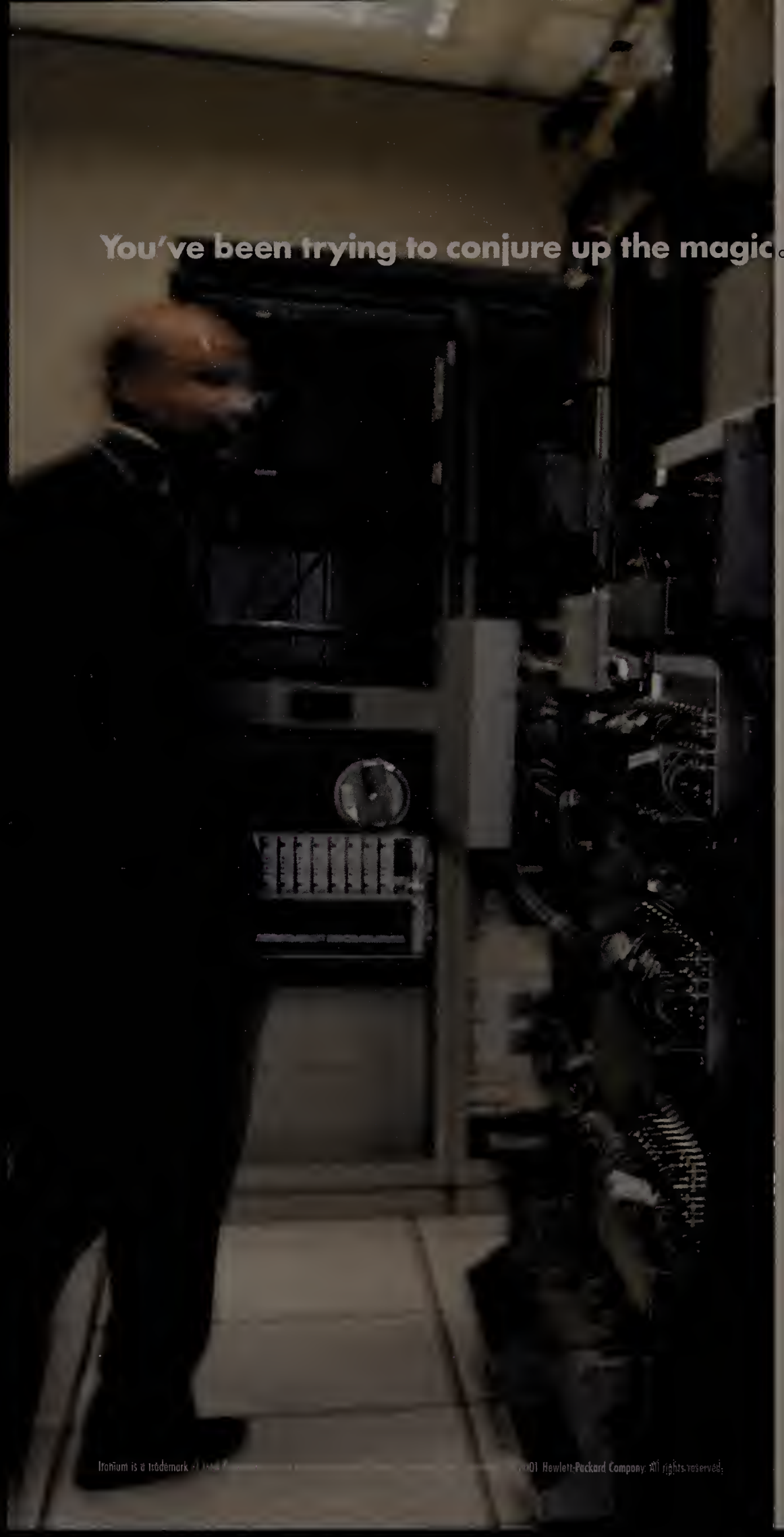
Infrastructure: it starts with you.



You've been trying to conjure up the magic combination of servers and operating systems that will finally bring together your company's various departments.

Meanwhile, sales is pushing to get the CRM software installed by the end of the quarter. Marketing is screaming for help with the new Web initiative. Manufacturing is late implementing the next phase of the ERP system. And you're stuck there in the middle of the crossfire, glancing around the nerve center of your enterprise, waiting for the inspiration to arrive.

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hp invent

THIS WEEK

QUICK DEGREES

A growing legion of working students are taking advantage of regionally accredited universities that not only accept transfer credits from other colleges but also apply work experience, training, certifications — even speeches and white papers — toward diplomas. **PAGE 22**

Courtenay Buchan (left) and Russ Weakley-Brown

EXECUTIVE EDUCATION

Find out the pros and cons of electronic learning systems from IT and business managers, such as the Wachovia Corp. e-commerce leaders above, who have taken online courses themselves. **PAGE 24**

TO MARKET, TO MARKET

Business-to-business online marketplaces have created application integration headaches for early participants and have almost led to fisticuffs between rivals-turned-partners. So why are pioneers still so bullish on them? **PAGE 26**

KNOWLEDGE PORT

A new knowledge management system at Boeing is expected to pay for itself within 18 months by preventing service engineers from having to repeatedly answer the same queries. **PAGE 28**

JOE AUER/DRIVING THE DEAL

One Bite at a Time

HERE'S A STRATEGY YOU CAN USE to help gain and maintain negotiating strength. The key to this — called the "salami" strategy — is to disclose your goals to prospective vendors a few slices of information at a time, rather than give them the whole salami when they ask what it takes to do a deal.

Force the prospective vendors to fully address a few selected negotiation points without disclosing your entire position. Then negotiate only the set of issues you've selected and resolve those issues before discussing any of your other objectives.

Many vendors will press you to tell them everything you want before they concede anything. Tell them that they don't need to worry about the rest of the things you want because if they don't meet your initial issues, they'll never hear your other points, but some other vendor will.

This technique has several advantages:

■ **It helps put you in control of the negotiations.** Only *you* are aware of your full shopping list, so the vendor is far less able to map a comprehensive strategy to gain control of the negotiations. On the other hand, you can disclose, withhold or compromise on points as necessary.

For instance, if you win or lose some points early in negotiations, it may change the importance of subsequent issues. And later, you can add points that may accomplish the same goal as the points you conceded earlier.

■ **It permits you to add new considerations at virtually any point in the negotiations without being subject to the criticism of dealing in bad faith.** A vendor might make such a charge if you said, "This is everything we want," but then added other points after the original demands were negotiated.

■ **It puts pressure on the vendor to concede the previous two advantages.** The vendor is prevented from being able to control your negotiating position. You're in control of where and when certain points will be addressed.

■ **It allows you to assess and react to the vendor's negotiating position with maximum flexibility.** You can analyze a vendor's reaction to various issues and adjust your negotiating tactics in response to the vendor's reaction.

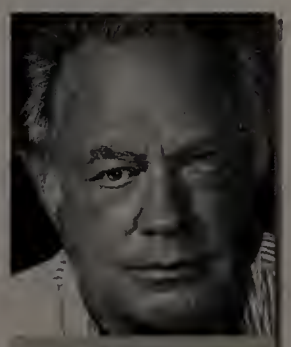
■ **It maximizes the likelihood that the vendor will agree to your specific negotiating points.** If the vendor is aware that you will continue negotiations *only* if agreement is reached on the subjects under consideration, The vendor is more likely to reach agreement. In addition, if early agreement is reached on some issues, it sets the stage and chemistry for further agreement on other points.

■ **This approach also lets the vendor know that you take the negotiations seriously and plan to pursue each point vigorously.**

There are a few techniques that help to maximize the effectiveness of this negotiating strategy. First, you can simply explain that the entire purpose of focusing on a few issues at a time is to determine whether there is any rationale for continuing negotiations. As one customer negotiator explained to a vendor recently, "Look, your time is valuable; our time is valuable. Before we clutter up the session with a lot of issues or waste time working through the contract, we want to know if you're willing to reach agreement on a number of issues we think are critical to the entire deal."

Second, recognize in advance that the vendor may do everything possible to avoid the "few slices at a time" approach. You should reject out of hand any vendor representatives' comments reflecting their desire to go to management only once with the whole package. Simply refuse to accept the idea, or ask the sales reps why your account isn't worth the trouble of going to corporate headquarters more than once. Better yet, ask them to bring someone to the table who has final negotiating authority.

Knowledge — especially of your opponent — is power when it comes to negotiating a deal. Vendors count on gaining as much knowledge of their customers as possible to boost their negotiating power and try to control the talks. But using the salami strategy can help prevent that. ◗



JOE AUER is president of International Computer Negotiations Inc. (*www.dobetterdeals.com*), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High Tech Acquisition Professionals. Contact him at **joea@dobetterdeals.com.**

SLOW ECONOMY SPURS QUICK DEGREES

Thousands of working students are turning to universities that are willing to evaluate old college credits, technical certifications and work experience and apply them toward college degrees. By Deborah Radcliff

CONTINUING EDUCATION

LOUIS DRZEWIECKI, a senior data analyst at United Healthcare Corp. in Minneapolis, decided three years ago to pursue a master's degree. But there was a problem. He still needed to complete his bachelor's degree, and of the 100 units he had earned 12 years earlier, his local state college would only accept 30. So he took advantage of a regionally accredited program at Charter Oak State College in New Britain, Conn., where most of those credits transferred.

Drzewiecki also took an aptitude test at Charter Oak, which allowed him to get credit for a second semester of English. And he earned college credits for his certifications in Java, data file structures and discrete math. When Drzewiecki's credits were totaled, he needed just five courses to complete his bachelor's degree in computer science. And his bachelor's fully transferred to the state college, where he completed his master of science degree in January of last year.

With employers being more picky in today's tight job market, there's no time like the present to finish that degree, say hiring managers and recruiters. But, like Drzewiecki, students attending traditional universities are often faced with having to start over again.

Traditional four-year universities accept only a set amount of transferable credits toward bachelor's degrees. And while you can lobby for credits for professional training and work experience, such universities typically don't accept them. That's why a growing number of working students are turning to regionally accredited, adult-friendly universities that evaluate old college credits, technical and business certifications, work training and proficiencies and then apply them toward a degree.

"Our motto is, 'What you know is more important than where or how you learned it,' " explains Jerome Atkins, dean of technology and engineering at Excelsior College in Albany, N.Y.

But with so many adult learning programs to choose from, it's tough to match a particular college to your past experience and future goals, according to Peter Proehl, a counselor at Degree Consulting Services in Santa Rosa, Calif.

Some of these fast-track programs, such as Excelsior's, emphasize college equivalency tests and preevaluated workplace and military training, which includes technical and other work-related certifications. Other programs, such as that of Charter Oak, specialize in "life portfolios" that document and test college-level skills developed through life and work experience. And if you're pursuing a graduate degree, it's a whole different ballgame.

Lee Crow, a network administrator at a U.S.-based telecommunications company who's working in Doha, Qatar, says the high number of specialized programs has made it nearly impossible to decide which school is best suited to meet his particular needs for distance learning, distance testing and military accreditation.

"There's too much information," says Crow. "Different schools offer extremely different methods to obtaining a degree. Not knowing what method best suits me, it's hard to take that leap and enroll."

For now, Crow is awaiting a response to his application to Excelsior. He may be surprised. Excelsior, which charges about $750 to register and $450 per year for administration, accepts credits for a wide range of military and professional training programs and certifications. So Crow's two years in the U.S. Navy's electronics and nuclear reactor operator training programs, combined with his oral and written communications skills and six IT certifications, may net him a degree program requiring very few additional courses, according to Atkins.

On-the-Job Training

Like Crow, you may be surprised to find that your company's training programs are already preapproved for college credits through the American Council on Education (ACE), a Washington-based, 1,800-member trade association for higher education.

Since 1974, ACE has evaluated 10,000 courses and examinations for businesses, trade associations and government agencies. Its recommendations are issued to more than 1,200 participating colleges and universities. Some 300 business training programs are approved for accreditation by ACE, including those of Fortune 500 companies such as AT&T Corp., Citigroup Inc. and General Motors Corp. (For a list of course providers, go to *www.acenet.edu/calec/corporate/participating_orgs.cfm.*)

Many schools, such as the University of Phoenix in Seattle, have articulation agreements with local employers that allow students who work at those companies to get credit for training programs they have taken. Most colleges list these articulation agreements on their Web site recruiting pages.

For those without transferable workplace training or experience, it may make sense to build a life port-

folio that includes college-level learning acquired through things such as work, the military, hobbies, reading and travel, according to *Earn College Credit for What You Know* by Lois Lamdin (Kendall/Hunt, 1997).

For example, white papers, published articles and speaking engagements can count as written and oral communications credits. Business accounting may apply toward mathematics requirements.

But developing an experience portfolio and assigning college credit to that experience is difficult to get right, according to Proehl and others. That's why Excelsior frowns on portfolios, says Atkins. And it's probably illegal for a college to sell a degree based on a portfolio alone, according to academic experts.

"The work experience has always been a red flag for me. These are too close to the degree mills that say, 'Give me a letter and some money, and I'll give you a degree,' " says Thomas Kevin, a computer consultant in Detroit who completed his bachelor's degree in operations management at Regents College (which is now Excelsior) in 1997.

One exception is the regionally accredited Thomas Edison State College in Trenton, N.J., says Proehl. "[At] Thomas Edison, you can [earn] a complete degree for portfolio experience, but it's pretty hard to do," he says.

Eric Haberkamp, a staff consultant at Exodus Professional Services in Dallas, banked 80 credits at Edison based on past college experience. He added to that total by building portfolio credits for his work experience and technical knowledge and by taking equivalency tests administered at a local library by an Edison-approved provost. Now Haberkamp needs to take seven or eight classes at the University of Texas at Arlington to earn his bachelor's degree, which will be issued by Edison State.

Life-credit programs aren't well suited for graduate degrees, which require students to possess high-level proficiencies. So speeding up the graduate degree process often means accumulating units in the fastest way possible: via an accelerated program.

In December 2000, Dan Blanchard sped through a 36-unit degree program in just 15 months. Blanchard, senior director of systems and network management at Marriott International Inc. in Bethesda, Md., enrolled in a $28,000 fast-track program at the Ashburn, Va., campus of The George Washington University called the Executive Master of Science in Information Systems.

He says he selected that program because other regional fast-track master's programs offered only degrees in "general studies." Blanchard, however, wanted an information systems degree.

These programs aren't for the fainthearted. The program at George Washington is so competitive that out of 80 preapplications received annually, a maximum of only 21 students are chosen to start the program each year, says Sandy Rose, administrative director for master of science and information systems technology programs.

There's a reason for such pickiness. Each new class of students must collaborate on a project throughout the program — meaning those students are expected to bring a certain level of problem-solving savvy into these collaborations. "It's a very intense experience," says Blanchard, "but well worth it." ◗

CHRIS HARTLOVE

DAN BLANCHARD, senior director of systems and network management at Marriott, says the accelerated 15-month master of information systems degree program he attended was "a very intense experience but well worth it."

How Life Credits Work

1. **The student enrolls.**
2. **The student contacts a prior-learning assessment center and submits for review past credits, certifications, proof of proficiency in foreign languages or a portfolio of proficiencies.** Some colleges, like the University of Phoenix, have agreements with corporations to accept workplace training courses for college credit.
3. **The student is assigned an adviser.** To prove competency, the student may be required to do the following:
   - Take standardized equivalency tests, such as those for the College Level Examination Program and Defense Activity Nontraditional Education Support. (There's an average fee of $50 for administrative costs.)
   - Take college-issued proficiency tests.
   - Write essays.
4. **Experience is evaluated and credits are issued.**
5. **The student takes his remaining courses and finishes his degree.**

Scam Alert!

Author John Bear and college adviser Peter Proehl run into them all the time: illegal diploma mills offering college degrees for money. To list such a degree on your résumé would be fraudulent, even if you didn't know the college was a scam. Here's some advice on how to protect yourself when shopping around.

- **Select an evaluated, accredited college** from one of Bear's books, such as *College Degrees by Mail and Internet* and *Bears' Guide to the Best Computer Degrees by Distance Learning* (Ten Speed Press, 2001), both available at *www.degree.net*.
- **Join discussion groups** at Web sites such as *www.degreeinfo.com* – but beware recruitment spam.
- **Ask about the teaching and advising faculty.** If the college is virtual, then that faculty should come from accredited colleges you may already be familiar with.
- **Get a list of companies that have reimbursement and articulation agreements with that college.**

EXECUTIVE EDUCATION ON A SHOESTRING

Web alternatives cut costs and travel out of the learning equation, but there are trade-offs. By Kathleen Melymuka

THE RECESSION, time constraints and the fallout from Sept. 11 have left many IT shops searching for thrifty, quick, non-travel-intensive alternatives to traditional management and leadership education. Purveyors of Web-based classes are eager to fill the breach, but many IT managers wonder what they may be missing when they trade in their plane tickets for solo flights at their desktops.

Electronic learning, currently a $4 billion-to-$5 billion market, is expected to increase to $15 billion by 2005, according to IDC, a research firm in Framingham, Mass. Vendors range from Harvard Business School to dot-com start-ups. Offerings vary from simple business primers to accredited MBA programs, and production values run from MTV-slick multimedia to simple text.

Despite their variety, most distance-learning courses have a lot in common (see box), and all have the same downside: a lack of human interaction. However, customers' biggest complaints aren't about the characteristics or quality of the courses themselves, but about the fact that employees aren't using them. They say that the best way to assure success is for managers to make it clear that participation is expected and to designate time for training.

Hallmarks of Distance Learning

- **Portability:** Electronic learning courses are available via the Web anytime and anyplace. Some are downloadable for use away from Internet connections.
- **Modularity:** Many courses consist of multiple, easily digestible 10-minute bites, making it easy for learners to come and go during the lesson.
- **Interactivity:** Role-playing, quizzes and even online "mentors" can test a student's progress.
- **Assessment:** Courses pre- and post-test the student's grasp of the subject matter and application of the course material to the workplace.
- **Research tools:** Many programs include searchable indexes of quick-hit topics for just-in-time applications at work.
- **Price:** Depending on volume, prices range from several hundred dollars to just a few dollars per seat per course or sometimes for entire suites.

Guru-based

The e-commerce division at Wachovia Corp. in Charlotte, N.C., wanted to include certain core competencies in its leadership development, says Russ Weakley-Brown, the bank's e-commerce alignment leader. Wachovia contracted with San Francisco-based Ninth House Inc. for a dozen courses that use interactive videos to showcase leadership experts such as Tom Peters, Ken Blanchard and Peter Senge.

Courtenay Buchan, interactive marketing and design director of e-commerce at Wachovia, recently took a course called Partnering for Results delivered by Larraine Segil. "We were in [the] middle of a merger, and it was very, very relevant," Buchan says. "I made it a requirement for my whole team."

She took about two and a half hours, over four sessions, to complete the course. "It was very effective, because it went from high-level theory to real-world situational models to illustrate the practical uses of what she was saying," Buchan says. "I use the goal-clarification and negotiation skills every day." According to Buchan, the course compares favorably with traditional live training in terms of content and delivery. There is a lack of human interaction, "but the trade-offs in dollars, time and flexibility mitigate that," she says.

Wachovia likes Ninth House's flexibility of delivery. The multimedia materials are bandwidth hogs, so Ninth House provides the materials via CD to learners who have bandwidth constraints. Wachovia's e-commerce division has championed the courses, and managers support training during work hours, so more than 25% of the staffers have been active users. Buchan says she expects that figure to climb because courses have been linked to competencies required in the division.

Access to the program starts at $300 per seat per year, with discounts for quantity. Wachovia's 200-member e-commerce division alone has saved an estimated $138,000 on travel and traditional learning costs since 2000.

No Frills

As director of the Office of Organizational Development at the Kansas Department of Social and Rehabilitation Services, Mark Andrews needed to train more than 6,000 employees in 105 county offices. Some are one- or two-person shops with 56K bit/sec. modems, so he needed a program that could run on the lowest-common-denominator technology, with no requirement for sound.

In 2000, the Topeka-based agency contracted with Diaplan Designs Inc. in Tampa, Fla., to license a text-based, 35-course offering for its workforce. So far, about 15% of the department's employees have taken an average of four courses. Use is expected to grow because the state recently approved the courses as a substitute for classroom work required to progress along certain career paths.

CONTINUING EDUCATION

Kenneth Morris, director of the agency's operations unit, recently took a four-hour communications course. In 25 small modules over three days, the class covered all types of communications, from phone calls to group presentations and reports.

Morris says the course was a good value. "I am a reader-type learner, so it fits my style," he says. "It's not as effective as a [weeklong] seminar, but from a cost/benefit standpoint, it was highly effective."

However, electronic training's strength — that employees don't need to leave the office — is also a weakness, according to Morris. "I haven't done nearly the number of courses I should," he says. "I keep saying, 'Tomorrow I'll do it,' but there are always so many priorities."

Although the state negotiated a special license, Diaplan's typical fee is $49 per course, per person for one-time use, or $350 for all 35 courses. The price drops significantly for volume purchases. Andrews says his electronic-training costs are "highly competitive" now, but because the state paid a one-time fee, the cost-effectiveness of the courses will increase.

Worldwide Training

Northrop Grumman Information Technology in Herndon, Va., needed to provide a broad range of consistent training to its 5,000 employees throughout the world. The federal contractor chose Redwood City, Calif.-based SmartForce PLC's SmartForce Enterprise System, a 1,500-course library, at a total annual cost of $67 per employee.

Since last spring, employees have completed 4,000 courses and 8,000 hours of training, says Jeanette Hohlstein, operations manager of Northrop Grumman's organization and workforce development group. Employee surveys have been "overwhelmingly positive," she says, and 37% of employees have taken at least one class or used a module from a class as a just-in-time learning tool.

Bruce Friedman, a senior IT manager, has taken several leadership courses, including most recently Diversity Training for Managers. He says the content was comparable to classroom training that he has received on the same subject. "Well thought-out, put together nicely and easy to navigate," Friedman says, adding that he found the modular makeup useful because he could test out of areas he already knew.

The weaknesses, he says, were the lack of interaction and the inability to "go off on a tangent that could turn out to be useful."

For more complex subject matter, Friedman says Web-based training would be best as a basic primer to get people ready to deal with complexity in a classroom setting. Hohlstein notes that Northrop Grumman often uses that approach.

Culture Gap

NEC America Inc. wanted to cut costs and the inevitable drain on productivity that comes from traditional off-site training, says Wim Wetzel, manager of the training and education organization at the Irving, Texas-based manufacturer of advanced communications products. In May of last year, NEC signed a three-year contract with Columbus, Ohio-based Pathlore Software Corp. for 2,500-seat access to more than 100 online courses.

Joe Aschauer, executive vice president of NEC Infrontia, a research and development division, has taken several of the courses, including Energizing and Empowering Employees. He has done all the work at home. Aschauer finished the course in just over an hour and says the quality of content is similar to the short management training courses that he has taken in the past, but more flexible.

KELLY CULPEPPER

DISTANCE LEARNING AT WACHOVIA "was very effective, because it went from high-level theory to real-world situational models," says Courtenay Buchan, shown here with the bank's Russ Weakley-Brown.

"I can start and quit when I want," Aschauer says. "I can download it and take it on the plane."

The downside, he says, is that "there's no live instructor I can ask for clarification. No interaction with other students. It's a solitary learning experience."

But practical considerations outweigh those shortcomings, Aschauer claims. "Honestly, I don't have time to take time from work for training, so this is better than anything I have found," he says.

Unfortunately, Aschauer is the exception at NEC. So far, despite a barrage of in-house advertising, only 88 people in the company have taken courses, Wetzel says. NEC has been downsizing, and feedback indicates that employees fear it doesn't look good to be training during work hours, that some managers prohibit it and that many staffers resist the option of training at home. "It's a shame because the courses are very good," Wetzel says.

As a result, while NEC is still spending less money than it would on traditional training, it's not getting the economies of scale it counted on. Currently, the actual cost is about $800 per seat, compared with about $2,000 to go off-site, Wetzel says. But pumping up the volume would slice the per-seat costs.

Wetzel says NEC's culture has to change to bring training into the workday. Meanwhile, unless Pathlore restructures NEC's contract to a pay-as-you-go system, NEC won't renew its contract. "Companies can't afford to pay for training that's not used," he says.

Quick Link To find out more about vendors that offer executive e-learning courses for companies to purchase for employee use, please visit *Computerworld.com*: **www.computerworld.com/q?27468**

No Pain, No Gain

B2B E-MARKETPLACES

Despite the struggles with behind-the-scenes integration work and bickering among industry rivals, IT veterans say e-marketplaces are worth the effort.

By Michael Meehan

SINCE PUBLIC ELECTRONIC MARKETPLACES HIT THE scene two years ago, the behind-the-scenes integration work, bickering among industry rivals-turned-partners and other logistical headaches have illustrated how these electronic bazaars have been hard-pressed to emerge.

Even Pat Wildenburg, Delta Air Lines Inc.'s president of business-to-business e-commerce, describes the Atlanta-based company's push into the public marketplace arena as "painful and expensive."

The Cordiem LLC marketplace that Delta has been trying to build with other airlines and aircraft companies will ultimately require a massive shift in corporate business practices along with a hefty amount of systems integration work for IT departments.

Yet Wildenburg offers up a third word to describe the marketplace initiative: worthwhile. He estimates that by 2005, the Cordiem marketplace will save Delta $40 million to $50 million per year, making these early growing pains a distant memory.

"I think people just totally underestimated the amount of effort, the amount of energy and the amount of investment required to build these exchanges," Wildenburg says. "These are serious businesses we're trying to build, and you can't do this sort of thing halfheartedly."

Perhaps more than anything, Wildenburg's statement sums up what went wrong with the online exchange concept. The business-to-business gospel — as it was preached in the late '90s — was that easily accessible Web marketplaces would drive cost and complexity out of corporate supply chains. But the reality is that the corporate landscape is dotted with a mishmash of technologies that make cost and complexity central components of any major new initiative.

That reality has been killing marketplaces off like flies in recent months. News that an electronic exchange has folded barely counts as news anymore. Yet Delta and many other corporations still believe enough in the ultimate payoff of the concept to suffer the extra time and work.

Michael Moriarty, an e-commerce consultant at A.T. Kearney Inc. in Chicago and co-author of *Power Play: The Beginning of the Endgame in Net Markets* (John Wiley & Sons, 2001), says early online marketplace efforts largely underestimated the amount of data they needed to push in order to alter corporate supply chain practices. He adds that companies didn't bother to figure scalability and fault tolerance into their business plans, never factoring in the IT complexity of how to handle thousands of concurrent users performing detailed transaction, engineering and product discovery work.

"You had these creative guys thinking up creative stuff that was way too creative for anybody to use," Moriarty says. "But a lot of them didn't have the bandwidth to handle the huge volumes they needed to stay in business."

Shrinkage

Big Five consultancy Booz Allen & Hamilton Inc. in Chicago estimated that there were 1,734 online marketplaces in 2000. After a brutal shakeout period, that number is expected to drop to 407 by 2004. With the economy in steep decline after Sept. 11, the pace of attrition has picked up considerably.

"Most marketplaces were put up by entrepreneurs who thought all they had to do was match up buyers and suppliers," says consultant Brian Long, who has been coordinating the Booz Allen work. "Yet standard products and services in a generic exchange are not what companies need. They're going to want customized solutions."

To that end, Booz Allen's study found that 55% of technology users customize the products they buy.

"Vanilla offerings will not survive; there has to be some type of value-added service if a marketplace wants to make itself attractive to the business community," Long says.

In general, auctions have been the first service offered in online marketplaces. Though it's hardly a business-transforming capability, an online auction is easy enough to set up and, if the marketplace has been founded by a consortium, the investors get a quick return for their money in the form of lower

RICHARD LILLASH

unit costs on the items they buy.

Wildenburg says Delta has experienced 8% to 12% savings on its line item costs using Washington-based Cordiem's auction tools and has even found new buyers when it auctions off older aircraft.

In order to standardize the use of those auctions, Delta will implement software from Rockville, Md.-based B2e Markets Inc., which will set business rules governing the way employees search for and negotiate with business partners in cyberspace.

"As you get more internal adoption for the marketplace, you have to formalize the ways your company uses those tools," Wildenburg says. For example, "maverick" purchases made by employees working outside a formal structure can undo the savings realized within it, he notes.

Kevin Cronin, global e-business director at engineered plastics manufacturer Ticona in Summit, N.J., a subsidiary of Celanese AG, says one of the trickiest things about marketplace ventures is that customers don't really know what they want, meaning that the companies trying to form marketplaces find themselves building amidst uncertainty.

Ticona joined with other plastics industry heavyweights to form Atlanta-based Omnexus, and Cronin says he sees the biggest value for the exchange as being a way to perform electronic transactions with smaller customers who never joined the electronic data interchange world.

According to Cronin, 98% of Ticona's orders are customized, and the transactions are much smaller than in the bulk materials world. Add 750 U.S. customers, 750 European customers and 3,000 SKUs and you've got a mammoth operation on your hands.

"And we're the little guys in the Omnexus consortium," he says. "So you can see why we're not really sure what to expect once everybody and their customers begin to operate in the marketplace."

One thing analysts agree on is that it will be the consortium-led exchanges that survive the economic hardships ahead and define marketplaces for the future. Yet big money and industry titans on your board of directors don't guarantee success.

What's in An Exchange?

An October 2001 review of 1,329 marketplaces found the most common services offered were the following:

Industry information	68%
Catalog purchasing	66%
Auctions	63%
Value-added services	28%
Logistics	23%
Supply chain services	9%
Collaboration tools	5%

What Do Users Want?

In an October 2001 poll of 176 companies, respondents said they wanted the following in exchanges:

Improved profitability	70%
Create standard business practices	57%
Increase asset utilization	45%
Streamline sales channel	43%
Increase competitive position	41%
Increase speed to market	39%
Improve product attributes	11%

NOTE: MULTIPLE RESPONSES ALLOWED

SOURCE: BOOZ ALLEN & HAMILTON INC., CHICAGO

Backed by Chevron Corp. and Texaco Inc., petroleum industry exchange PetroCosm Corp. in Houston gave up the ghost in September. Long says that PetroCosm spread itself too thin too fast while failing to provide a quick return for its investors.

Gale Daikoku, an analyst at Stamford, Conn.-based GartnerG2, says marketplaces need to act as industry clearinghouses, a virtual Switzerland where the superpowers of a given industry can meet. Electronic trading standards in particular strike her as a natural arena for an industry consortium to lead the charge. "Plus, if you're not developing standards then you're leaving the door open to competition," she says.

Moriarty agrees, saying those who set standards will be six to 12 months ahead of their competition. Yet he doesn't believe any group will be able to get much past data and invoicing standards. "When it comes to business process standards, you'll get a lot of people who forgot to come to the meeting and who won't support the standards even if they get adopted," he says. "There's just too many companies that view process as a competitive advantage."

Analysts believe the next year will be little more than a feeling-out period. Some marketplaces will gain momentum, but corporate users likely won't commit to big-dollar spending.

Regardless, major players still hold high expectations for public marketplaces. Wildenburg says maintenance is one area where Delta might see a boost in use on Cordiem. The airline is installing an SAP enterprise resource planning module that will allow its worldwide maintenance operations to leverage a single buying tool like Cordiem.

Cronin says he hopes that in the future, Omnexus can provide a forum where Ticona engineers can work with customers online.

To Moriarty, many exchanges are proving they can do things "exceptionally cheaply" and now must prove they can also do things "exceptionally well."

Quick Link

To read how online plastics exchange Omnexus fought to survive and succeeded, please visit our Web site at:
www.computerworld.com/q?27527

Making Support Pay

Boeing's new knowledge management system cuts down on redundant queries to service engineers, contributing to an 18-month payback. By Pimm Fox

IF YOU'VE EVER answered the same question over and over again, you understand firsthand the potential value of a system that lets users quickly and easily access stored knowledge on the fly. Among other things, it would enable workers such as service engineers and customer service representatives to spend their time more productively while helping organizations reduce their support costs.

Boeing Commercial Airplanes in Seattle wants to do both. "We are trying to change support from being a liability — and the costs of answering hundreds and hundreds of questions at thousands of dollars a query — to a thing of value," says Greg Norden, field service regional director and leader of the reusable solutions project.

Why does it cost so much to answer customer questions? Service engineers spend hours retrieving data, information and records that have already been compiled to answer the same questions. In essence, redundant work is expensive.

Norden determined that if Boeing could cut the dozens of queries its service engineers receive each day by 2%, the company would be able to pay for a newly installed knowledge management system from Seattle-based Primus Knowledge Solutions Inc. in 18 months.

Chicago-based Boeing Co., whose active aircraft range from 50-year-old DC3s to new 777s, must provide maintenance and support for a wide range of equipment with long life spans. To do this, the company's global field workforce looks to Boeing engineers in the Seattle area and Long Beach, Calif., for answers to all types of questions.

Repeat Performances

"About 50% of all our questions are referred to service engineers," says Norden. The problem was that about half the time, the service engineers were answering questions they had previously answered — perhaps several times before.

For example, if a government-mandated change on a portion of the landing gear was unclear or appeared to conflict with an earlier change, a call would be made to a service engineer. Typically, the engineer would treat the inquiry as an entirely new investigation, unless he happened to remember the issue from a previous inquiry. But the engineers could find the answer again without launching an entirely new search only 10% of the time.

The goal of the new knowledge management system is to create an electronic repository of solutions to customer questions. The previous homegrown system, known as BoeCom, handled workflow management, routing cases by business rules according to airplane model and subject code.

"It also had a structure similar to that of Windows Explorer, with a hierarchy of folders that contain messages and all the things necessary to answer a particular question," says Norden.

But the system proved difficult to use as a shared resource. "Engineers created folders that made sense to them, and not everyone knew how to interpret the naming conventions," Norden notes.

In addition, the BoeCom system — which is being replaced soon — didn't have the security features and interpretive software to allow nonexperts to access the information. For example, information about a repair for a component in the wings of a 747 requires a tremendous amount of interpretation that is almost impossible to share. Only the person who created the information knew exactly how to find it, because the BoeCom system lacked the intuitive structure for adding results from new investigations.

Sharing the Knowledge

Primus' enterprise software made it possible for Boeing to capture the knowledge as part of the natural workflow, putting messages, drawings and documents at their engineers' fingertips using a sophisticated search engine. This saved engineers up to several hours per day because they didn't have to manually organize and coordinate information-gathering.

Now, "every time a field service person answers a question, it can be funneled to the knowledge management system and indexed for future searches," Norden explains.

"Businesses are beginning to understand that static FAQs need to be dynamic, that there is a way to create, manage and distribute the knowledge inside the enterprise," says Katrina Howell, an analyst at Frost & Sullivan Inc. in Oakland, Calif.

The system is protected by password and user ID and is controlled by Boeing, making it possible to restrict access to certain types of data as well as implement government rules about maintenance procedures.

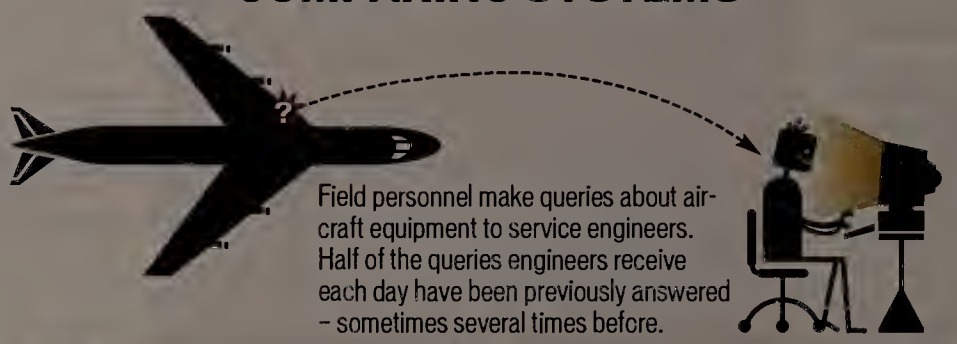
Norden populated the system with the help of 35 summer interns, who worked with systems engineers to enter previously answered questions.

"That's the part of the installation I wouldn't repeat," he says. "We could have gone with a lot fewer interns and more engineers learning how to use the system."

It takes about a day to learn how to use the system, and there are tools available to help engineers figure out the classifications and terms.

"You find that it becomes a library-science problem," says Norden, "not a software problem." ◗

COMPARING SYSTEMS



Field personnel make queries about aircraft equipment to service engineers. Half of the queries engineers receive each day have been previously answered – sometimes several times before.

OLD SYSTEM

BoeCom, a homegrown, business rules-driven knowledge management system.

NEW SYSTEM

Software from Primus Knowledge Solutions that includes an electronic repository of answers to a given set of questions that can be drawn upon more efficiently and effectively.

PROBLEM

As engineers answered queries, they stored the information in BoeCom, but they each used different naming conventions, and only the people who created the names would be able to understand them.

SOLUTION

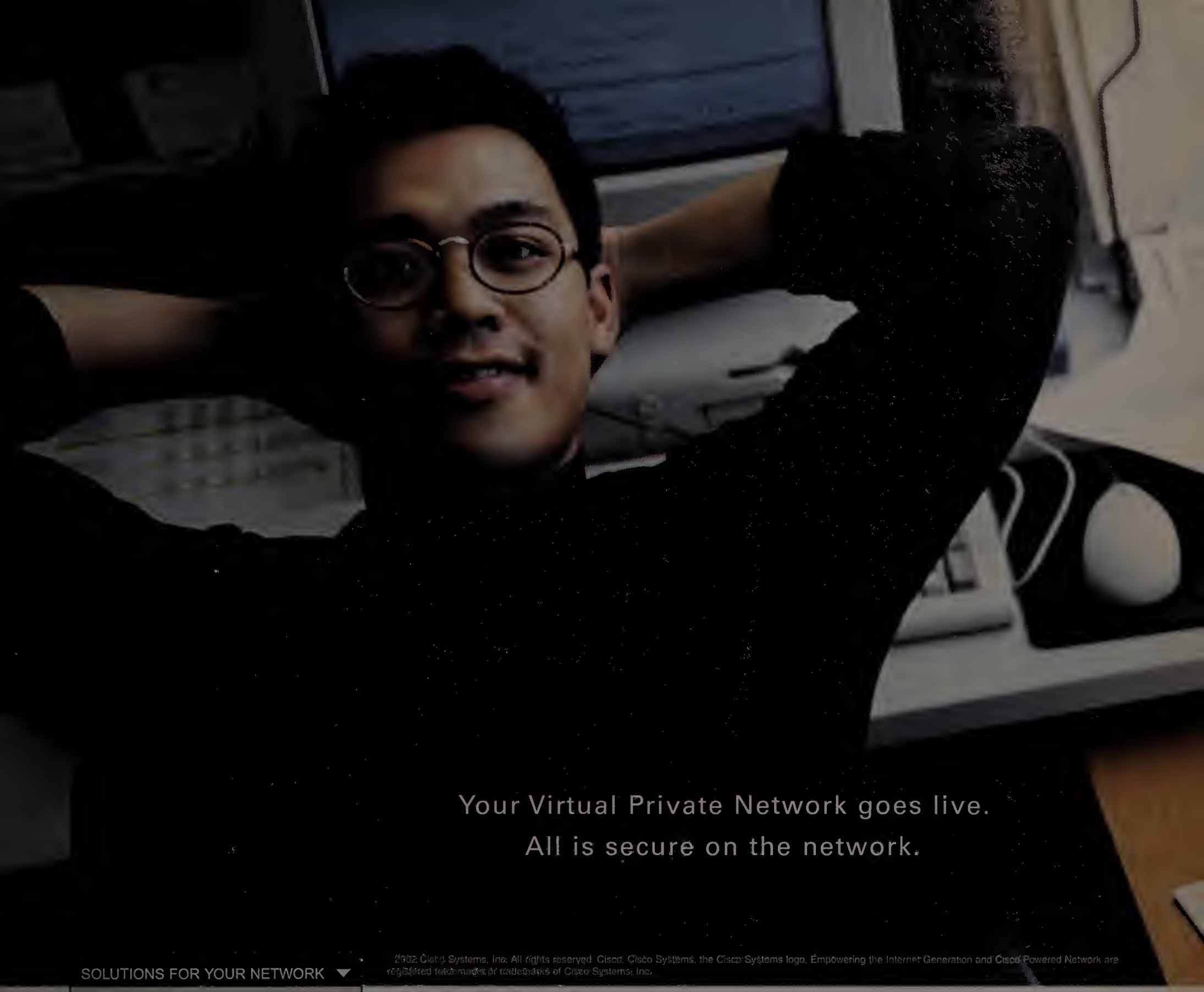
Primus' software makes it possible for Boeing to capture that knowledge more easily, putting messages, drawings and documents into folders. This saves engineers up to several hours per day, since they don't have to manually organize and coordinate information.

COST

It would cost Boeing up to thousands of dollars each time one of its engineers had to answer a query because they were spending hours retrieving data, information and records that had already been compiled to answer the same question.

SAVINGS

Time savings from use of the new system should help produce a return on investment in 18 months.



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Business, IT Leaders Still Have Time for Big Ideas

A Harvard Business Review *editor discusses some management concepts that could be useful this year*

What's the big idea? In the March issue of the Harvard Business Review, *its editors ask that question as they look back over the past year. They came up with seven big management ideas for 2001, and senior editor* **Julia Kirby** *talked about some of them with* Computerworld*'s Kathleen Melymuka.*

Q: With the business world in survival mode, who has time for big ideas right now?

A: We approached this project thinking there wouldn't be a whole lot. We felt the year had been so challenging that even before Sept. 11 people were hunkering down. But maybe adversity breeds creative thinking, because we ended up with 37 really serious contenders for the list. We got it down to seven with a lot of discussion about which would have the most lasting effect on the practice of management.

YOU NEED TO understand what your customers want, says Julia Kirby, "otherwise, you're abdicating your responsibility as a source of innovation."

Q: I like the idea of the emergence of "everyday leaders." What makes them different?

A: They get things done by working behind the scenes more than [by] putting themselves in the spotlight. That's often the most effective way of making change happen, but at the cost of not getting the credit personally. That's what they're good at. They're dedicated to making change happen rather than building their own résumés.

Q: Where will the next generation of these leaders come from?

A: That's a fascinating question. What can we expect to see from the generation of failed dot-coms? Will it be a nightmare as they all come back looking like the prodigal son? Will they return with too much attitude and chips on their shoulders, or have they experienced priceless lessons about opportunity and risk-taking?

I'll be interested to see if they'll be a generation of unbelievable leaders forged in the fire, or just a lost generation — like horses spoiled for real work.

Q: Another one of these big ideas is the realization that the Internet is more about businesses than individuals. We could have told you that!

A: It's like [author] William Gibson's line, "The future is already here; it's just unevenly distributed." For some segments of the population — like your readers — some of these ideas are not new, but not everyone has come around.

Q: Given that the rest of the world is catching on, what are some of the business opportunities you see?

A: The opportunities and risks are like those in any situation where there is some convergence on a standard or [where] an infrastructure is coming into place that didn't exist before. There's a lot of drudgery that no longer has to be performed, and that frees up attention and resources for things that can provide advantage.

If I don't have to build my own road, I can think about improving cars. But if you were getting a competitive advantage out of your own standard approach, you'll be forced to move away from that and think about how you can succeed in this different environment.

Q: You say the pendulum may be swinging back on notions of the best approaches to customer service. How so?

A: The mantra has become "customer-centric," "customer-driven." This idea is something of a backlash we've seen percolating over the past year: the sense that customers aren't always right, or maybe that delighting a customer doesn't happen when you ask, "What would delight you?" and do it.

That's not how you win a friend or get someone to fall in love with you. Instead, you need to understand at a deeper level what delights customers. Otherwise, you're abdicating your responsibility as a source of innovation. Every really major marketing coup in the recent past has not been customer-driven. Who asked for Beanie Babies?

Q: Another big idea: Games are for losers – meaning that honesty is in. Outside of what's happening with Enron Corp., I'd like to think that most business leaders have been reasonably honest. Am I naive?

A: It's not a breakthrough that businesspeople should be honest, but there's been a disturbing tolerance of — and even collusion with — some forms of dishonesty. We were in a situation where people were like Capt. Renault in *Casablanca*: "I'm shocked, shocked to find that gambling is going on here!" And we'd all wink and laugh and say, "Sign me up for another 50 shares."

Q: And this is changing?

A: We're seeing a tolerance shift. We're not going from black to white, but there's a really important shift in the gray area.

Q: Why is this shift happening?

A: I don't think it's simply because investors have been burned or that tolerance of that kind of dishonesty has stopped. It may have something to do with a post-Sept. 11 wanting to have more meaning, more authenticity. We can't piece out why this is happening, but it really does seem like people are tired of game-playing.

Q: It was cool to be cynical?

A: Yes, and now it's not so much.

Q: You talk about the tension between nurturing creativity and replicating best processes. This is certainly a big idea in IT. Which side is winning?

A: Both sides have been losing lately because of misguided efforts to bring them together. People have been trying to get more rigorous and disciplined about creative processes — trying to re-engineer the creative process.

Q: Sounds like an oxymoron.

A: Yes, on the face of it. But a lot of people want to replicate past successes, but they also want to monkey with the process because each situation is different. So they're being creative in the replication, and that produces mediocre results. The idea is to not mix our approaches. ◗

This is the latest in a series of monthly discussions with authors of articles in the HARVARD BUSINESS REVIEW on topics of interest to IT managers.

Home Depot Names New CIO

BY LUCAS MEARIAN

The Home Depot Inc. has named Robert P. DeRodes executive vice president of IT and CIO.

DeRodes, 51, joins Home Depot from Delta Air Lines Inc., where for the past three years he had served as CIO, as well as president and CEO of Delta Technology, a wholly owned subsidiary that oversees all of the airline's IT and communications activities.

Atlanta-based Delta named its former chief technology officer, Curtis Robb, to serve as its new CIO.

DeRodes replaces Ron Griffin, who stepped down as Home Depot CIO in November for personal reasons. DeRodes will report to Bob Nardelli, chairman, president and CEO of the Atlanta-based home improvement retailer.

HOME DEPOT CIO Robert P. DeRodes

DeRodes has an "outstanding track record of delivering world-class performance," Nardelli said. "As we embark on our next growth phase, Bob's leadership in the technology area will play a critically important role."

Before joining Delta Technology, DeRodes was senior technology officer for the global card products group at Pittsford, N.Y.-based Citibank. DeRodes also previously served as president of Sabre Development Services at Fort Worth, Texas-based The Sabre Group, where he led the software development, consulting and information services division for the U.S., Canada and France. ◗

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Dear Career Adviser:

With 20 years' experience doing a variety of data communications support work, middleware development and technical project management, I feel the apparent hot spots of IT are in application development and networking, rather than in traditional operating systems support.

Are project management jobs related to e-business and network technology a mainstay in today's environment? If so, will this continue or "commoditize" like the MCSE types of positions? Are certifications, such as IBM's certification for e-business, valuable in this market?

— READY FOR MIDDLEWARE

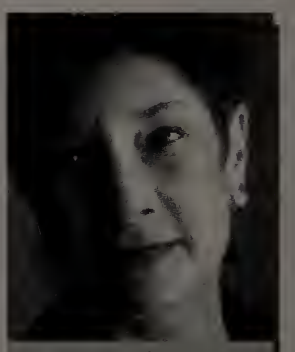
Dear Ready:

Getting a certification will let a potential hiring manager know that you're trying. But this is just a very small element of the total picture, and one that might plunge you headlong into markets filled with experienced, available talent, says Jerry Panagrossi, director of the technology partner program at Redwood City, Calif.-based Symbian Inc., a company providing wireless operating systems for mobile phones. Therefore, to position yourself somewhat more uniquely, if you're willing to consider a bolder move, try focusing on emerging markets, where you'll have less competition. This ranges from creating plug-in technology for the operating system, all the way up to developing higher-end applications such as mapping or multiplayer games.

"Wireless is just one example of a nascent industry where domain expertise rather than certifications creates multiple opportunities for IT professionals and software engineers," notes Panagrossi.

Getting yourself in the door, however, requires initiative. On the development side, start by downloading the software development kit of a company whose platform appeals to you and try to show that you can develop content, a game or an enterprise-type application for a particular platform or operating system. This kind of hands-on work is meaningful, Panagrossi says.

Alternatively, if you decide to go after a project manager slot, immerse yourself in a technology to show that you can articulate the details of spec'ing out a development effort. By going out and trying some of the newer technologies, you can build a new set of skills in a less-crowded playing field that you can then market. ▶



FRAN QUITTEL is an expert in high-tech careers and recruitment. Send questions to her at **www.computerworld.com/career_adviser.**

WORKSTYLES

IT Meets Biology In Donor Program

Paul Zyla, director of information systems at the nonprofit National Marrow Donor Program (NMDP) in Minneapolis, and Martin Maiers, manager of bioinformatics and research systems, discuss how IT meets medicine in an effort to save lives.

What are the most critical systems supported or developed by your department on a daily basis? Zyla: "We're broken out into five areas: application development, networking/systems, Web development, business systems management and bioinformatics/research. It's almost like a wheel with spokes — we're in the middle, and the spokes are centers throughout the U.S. and the world, whether it's a donor center that needs to register a donor or a transplant center that needs to set up a date for a transplant. We develop their software as well as the networking to communicate with us. We also collect data on patients after the transplant for five years."

What happens in the bioinformatics group? Maiers: "Bioinformatics supports the research and scientific services units. Physicians come to the NMDP and say, 'We have to find a match for a particular patient.' Our group focuses on how to store the data that helps find that match. The scientists argue over the best way to do that, and we take those spirited discussions and turn it into software."

How complex is the matching process? Maiers: "It's not like finding a blood-type match, where there are only a few choices. There are over 4.5 million donors registered, with information that has differing degrees of resolution, and the data we got 10 years ago is not at all like the data we're getting today. The system is being discovered as we grow."

Does it help to have a background in biology? Maiers: "It's not a written requirement, but having some biology makes quite a difference. My background is in IT, but I've been here six years and have been taking biology [courses] ever since. I'm finding it more interesting than computer science."

Zyla: "Knowing scientific notation and how to deal with scientific data really helps. We have a senior guy heading up data collection who used to be an astronomy student. And we have an intern who was a chemistry student at Oxford."

How would you describe the culture of IT at your organization? Zyla: "The department is casual, but everyone is dedicated to what they're doing and why they're doing it."

What makes your company's IT department unique? Zyla: "Within IS, we know what we're developing has the potential to save lives or at least extend lives. We have recruited people from other industries who want to use their skills for the benefit of humanity."

Is the life-saving aspect of what you do evident in your day-to-day work? Zyla: "People are well informed about what this organization produces. On a yearly basis, we have a council meeting where all the affiliated centers across the world come to Minnesota for three days. The staff is encouraged to attend and participate. They get to see people on the front lines and mingle with individuals from the donor centers and transplant centers. There's also a donor recipient meeting, which is pretty powerful.

"Another thing the staff is able to do is get trained to become a courier of stem-cell products. That brings the message home very clearly. They have somebody's life in their hands."

– Mary Brandel
thebrandels@hotmail.com

National Marrow Donor Program

Who they are: The international leader in the facilitating of unrelated marrow and blood stem-cell transplantation

Main location: Minneapolis

Number of IT employees: 70

Interviewees: Martin Maiers, manager of bioinformatics and research systems, and Paul Zyla, director of information systems

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THIS WEEK

WILL .NET MATTER?

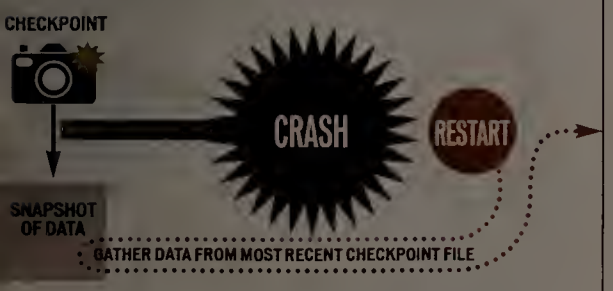
Microsoft is building support for its new development framework into its line of .Net Enterprise Server software. But it remains to be seen how corporate users will react and whether the move will bring Microsoft a competitive edge. **PAGE 36**

IT'S ALL DONE WITH MIRRORING

Financial services company Pershing has completed the installation of a mirrored data center based on Asynchronous Transfer Mode technology that has cut the firm's data recovery time from more than a day to about an hour. **PAGE 38**

QUICKSTUDY

Checkpoint and restart are mechanisms for protecting operating systems and enterprise applications from computer failures. Checkpointing involves taking periodic snapshots of data so it can be recovered in the event of a crash. Find out more. **PAGE 42**



SECURITY JOURNAL

Vince Tuesday scrambles to patch thousands of network devices in response to a recently discovered SNMP vulnerability. If that wasn't enough of a challenge, a new virus forces the shutdown of MSN Instant Messenger accounts companywide. **PAGE 44**

NICHOLAS PETRELEY

Just Say .Nyet

I COULDN'T COME UP WITH any reasons last week as to why .Net would revolutionize Web services. I've heard from many defenders of .Net during the past year, and not one of them has offered a credible argument regarding a unique advantage that .Net brings to the Web services table.

In fact, most .Net fans tend to wax rhapsodic over the ability to combine multiple languages via the Common Language Runtime (CLR) and Intermediate Language (IL) and ignore the Web services angle entirely. Some even fail to see the connection between the .Net framework, Web services and HailStorm/Passport, as if Microsoft created .Lang instead of .Net.

I suspect I know why so many .Net fans suffer from language myopia: Java. Java 2 Enterprise Edition (J2EE) is currently the de facto standard for Web services. Microsoft has to convince everyone that its CLR approach to programming is superior to Java before .Net can overtake J2EE.

So, how unique are the CLR and IL compared with Java? Not very. Java byte code is the key to providing language alternatives to Java. Lo and behold, the Java byte code instruction set is documented at *http://java.sun.com/docs/books/vmspec/2nd-edition/html/Instructions.doc.html* for anyone who's interested in making his language compiler generate Java byte code. Some folks have already accomplished this feat. You can find a couple of Ada95 compilers that produce Java byte code.

A program called Jython (*www.jython.org*) lets you write programs in Python and compile them into Java byte code. Kawa (*www.gnu.org/software/kawa/*) generates Java byte code from a language called Scheme. Fans of IBM's Rexx language can use NetRexx to generate Java byte code (*www2.hursley.ibm.com/netrexx/*). There's no reason why you can't create Java classes with one language and use them with another.

One might wonder why there isn't a C++ compiler that generates Java byte code. The answer is simple. First, Java syntax is enough like C++ that a C++ compiler would be redundant. More important, however, is the fact that standard C++ doesn't map well to a Java environment. C++ lets you do dangerous things that Java prevents.

C++ also doesn't map well to .Net. That's why Microsoft's "managed C++" isn't the same as standard C++. Visual Basic doesn't map well to .Net either. Microsoft had to make significant changes to Visual Basic to make VB.Net work with the CLR.

So, what advantage is there in using the .Net CLR? Speed. The claim to fame for .Net programs is that they should run faster than standard Java programs regardless of the language you use.

Strictly speaking, this is true if you run Java programs via the Java Virtual Machine, which runs byte code. Byte code programs don't run as fast as native code, even when you speed up the byte code with just-in-time compilers. But this limitation exists only because Java is designed to be platform-neutral.

If you don't mind subverting the platform neutrality of Java, there are ways to compile your Java programs into fast-running native code.

For example, TowerJ (*www.towerj.com*) compiles Java byte code into native code, as does a product called Jove (*www.instantiations.com/jove/product/thejovesystem.htm*). The free software GNU compiler GCJ also compiles Java into native code, although it's largely a work in progress.

If the proponents of .Net are correct in assuming that people are clamoring for a development environment that lets you combine multiple languages and produce native code, then there's an easy way to test that assumption. All of these features have been available for Java for quite some time. So if the features are truly the long-awaited answer to someone's prayers, we should be able to find dozens, if not hundreds, of projects that combine Java with Ada95, Kawa, Jython and NetRexx, all compiled down to native code with TowerJ or Jove.

If instead we find that most people build J2EE projects in Java with, at most, a just-in-time compiler, then I suspect that the .Net fans are suffering from glassy-eyed gee-whizitis. I also suspect they're going to get a big dose of reality halfway into their first big projects. ◗

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TIME FOR .NET REALITY CHECK

Microsoft is now supporting its new development framework in its enterprise servers. User needs will determine how much that matters. BY CAROL SLIWA

.NET IS FINALLY turning into something more than a catchy marketing tag for Microsoft Corp.'s .Net Enterprise Server line now that the software maker is building support for its new development framework into its products. But it remains to be seen how much the infusion of .Net technology into Microsoft's 10 enterprise servers will matter to corporate users — or whether it will give the company an edge over Java-promoting competitors such as IBM, Oracle Corp. and Sun Microsystems Inc.

"As important as .Net is to Microsoft's overall strategy, the individual servers will have to compete on their own merits with features that in many cases are only marginally related to .Net at all," says Dwight Davis, an analyst at Boston-based Summit Strategies Inc. "Microsoft's not going to be selling SQL Server in competition with Oracle with a .Net message. It's going to be leading with a price and performance message."

Yet analysts agree that the .Net initiative raises Microsoft's credibility in the enterprise application development space. They point out that some corporate IT departments may find it appealing to have .Net technologies built into server software — particularly if they're heavy users of Microsoft software.

Steve Sommer, CIO at New York-based law firm Hughes Hubbard & Reed LLP, a Microsoft-centric shop with 1,100 employees, says he can envision in-house programmers using .Net tools to write applications that monitor systems, manage resources or link information through portals.

"You write your own stuff and spend less money," says Sommer, adding that he may be able to substantially reduce his firm's software maintenance costs and reliance on expensive third-party products.

Sommer says he likes the idea of being able to use Microsoft's Visual Studio .Net development tool across his .Net Enterprise Servers, perhaps even to write applications that tie some of them together, such as his Exchange messaging server and Mobile Information Server.

By contrast, CIOs in multiplatform environments who prefer a best-of-breed approach may cast a skeptical eye. Brian Kilcourse, CIO at Walnut Creek, Calif.-based Longs Drug Stores Corp., says .Net frightens him.

Fear of Lock-in

"The unmentioned intention is to lock you into a strategy that you can't get out of, and I just don't think that's the right way to go," Kilcourse says. "In order to run the .Net framework, you've got to be on a Microsoft operating system. That's not open."

Longs uses Microsoft products, but Kilcourse says it won't permit .Net into the enterprise space "because it, in a subtle way, corrupts the viability of enterprise Java." Longs uses San Jose-based BEA Systems Inc.'s Java-based WebLogic application server.

Chris Atkinson, vice president of Microsoft's .Net Enterprise Server group, says that an application's ability to interoperate with applications running on other operating systems is more important than cross-platform capabilities, Java's main purported benefit.

"If you're talking to partners and customers, you've got no control over what systems they're using," he says.

Atkinson claims that XML Web services provide the best way to let internal applications communicate both with one another and with the external applications of customers and business partners. Using that approach in .Net, application data is sent in XML-based messages transmitted via the Simple Object Access Protocol (SOAP).

Davis says Microsoft's support of SOAP, XML and related standards "has definitely undercut the ability of competitors to pigeonhole Microsoft purely in a proprietary hole of Windows, because you should be able to create .Net Web services in a Microsoft environment and have them interoperate just fine with SOAP-enabled Web services created in a Java-based environment."

But how well XML and SOAP perform between two applications is a key question, according to Randy Heffner, an analyst at Cambridge, Mass.-based Giga Information Group Inc. "The best number I'm getting at this point is that the XML/SOAP connection is going to [give 30% slower performance] than if it was using some straight binary protocol" such as remote method invocation or Microsoft's distributed component object model, Heffner says.

Adding 30% overhead to a firm's messaging system won't hurt if the application is asynchronous, Heffner says. But if the application has stringent response-time requirements, he advises that considerable testing be done to see if the XML/SOAP approach works well.

Microsoft product manager Philip DesAutels acknowledges that "a proprietary customized protocol between two points could indeed perform better than a generalized protocol." But that "belies the fundamental principle that Web services are platform-independent," he says.

Unwavering in its commitment, Mi-

.NET ENTERPRISE SERVER ADOPTION

PROS	CONS
■ Tightly integrated server offerings provide consistency, common administration	■ Lack of flexibility due to potential vendor lock-in
■ .Net framework helps give cost-effective, productive development environment	■ Users skeptical of Microsoft servers working with products from other vendors
■ Support for emerging standards XML and SOAP offers promise of interoperability between disparate applications	■ Questions remain about performance of XML/SOAP-based messaging between applications

THE VIEW FROM MICROSOFT

Microsoft's CEO, **Steve Ballmer**, recently gave his view of his company's strategy in relation to the enterprise and corporate IT in an e-mail exchange with *Computerworld*'s **Carol Sliwa**. In the course of the correspondence, he offered Microsoft's definition of .Net, a concept that has been hard for many users and others to get a handle on.

CW: Microsoft has used the term *.Net* in many ways. There's Visual Studio .Net, Windows .Net Server and .Net Enterprise Servers, just to name a few. How do you now define *.Net*?

BALLMER: I really think the best way to define .Net is as Microsoft's platform for XML Web ser-

crosoft points to rival vendors, such as IBM, that also support XML and SOAP. "We're reaching a point when there is agreement across the industry of new ways of standardizing the flow of data between systems," Atkinson says.

At Microsoft, all roads appear to be leading to XML Web services. The company last month released a new version of Visual Studio .Net that aims to make it easier for programmers to build XML Web services. Its Windows .Net Server, pegged to ship in the second half of the year, will be the first server operating system to feature native support for the .Net framework and class libraries.

Also due for injections of .Net technologies, to varying degrees, are Microsoft's 10 .Net Enterprise Servers — six of which are due for new versions this year (SharePoint Portal Server, BizTalk Server, Commerce Server, Content Management Server, Internet Security and Acceleration Server, and Mobile Information Server).

Support for XML, SOAP

Paul Flessner, Microsoft's senior vice president of .Net Enterprise Servers, told a Microsoft developer audience that the servers will feature deep support for XML and SOAP and tight integration with Visual Studio .Net to make it easier for users to build and deploy applications.

The servers also will be embedded with Microsoft's Common Language Runtime engine, which will allow code written in more than 20 programming languages to run, giving developers a wider range of choices, according to company officials.

"Once the .Net framework is put in SQL [Server], then you can essentially write SQL queries and stored procedures in multiple different languages," Atkinson says, pointing to one of the capabilities that users will gain in the .Net-enabled version of Microsoft's database server due in 2003.

Calendar Sharing

Citing a potential new use with another one of Microsoft's most popular .Net Enterprise Servers, Atkinson says XML Web services could let an Exchange Server share calendars and schedule information over the Internet with a business partner using another vendor's software, such as Lotus Software Group's Notes. The .Net-supported version of Exchange is due next year.

Larry Perlstein, an analyst at Stamford, Conn.-based Gartner Inc., says that Microsoft has made it easier to integrate .Net Enterprise Servers with a non-Microsoft server. "But it depends on the level of complexity of the integration you want to do," he says.

Ray Valdes, also an analyst at Gartner, says he sees no reason for non-Microsoft shops to leap to .Net, even if Microsoft's developer tools are easier to use and its server products are generally more tightly integrated than the competition's offerings.

Companies that have chosen the Java approach for server applications might have concerns about vendor lock-in, lack of flexibility and potential architectural limitations if they move to a .Net environment. And they might decide that the benefits of .Net aren't worth the price, Valdes says.

But for Microsoft shops, he says, it's a "no-brainer" to go to .Net; the only issue is timing. He notes that Microsoft has "raised the bar" with respect to the scale and complexity of applications that can be developed on .Net.

How much corporations will be willing to rely on .Net remains a question. Companies that have complex applications running on mainframes and Unix boxes will "tend to value the portability of Java applications more highly," says Giga analyst Mike Gilpin. He notes that surveys show some companies will use both the .Net and Java development environments.

Will Zachmann, an analyst at Stamford, Conn.-based Meta Group Inc., says Java may have garnered mind share in many large companies, but he expects that Microsoft's .Net story will appeal to corporations going forward.

"Microsoft's server-side platform is good for a lot more than it's given credit for in the enterprise world today," Zachmann says, adding that in the Internet space, he thinks Microsoft's enterprise servers will compete favorably against the Unix products that dominated the dot-com world.

"If I wanted to bet on who's going to gain the most ground over the next year, I'd bet on Microsoft," Zachmann says. "Microsoft has the advantage of being low-cost, easy to work with and able to do the job." ◗

vices. It's the next generation of software that connects your world of information, devices and people in a unified, personalized way. What I mean by this is that the .Net platform enables the creation and use of XML-based applications, processes and Web sites as services. These services can then share and combine information and functionality with each other by design, on any platform or smart device, to provide tailored solutions for individuals on up to large organizations.

The .Net platform includes a comprehensive family of products, built on XML and Internet standards, that provide for each aspect of developing (tools), managing (servers), using (building-block services and smart clients) and experiencing (rich user experiences) XML Web services. .Net will become part of the Microsoft applications, tools and servers people are already using today, and down the road, .Net will be part of new products that extend XML Web service capabilities to even more of people's daily business needs.

STACKING UP AGAINST THE COMPETITION

Microsoft's .Net development platform is one of the key features in its stack of enterprise servers. Though there are other products that compete in specific markets, Microsoft's chief competitors are the other major vendors that have server software families of their own, including BEA, IBM, Oracle, Sun/iPlanet and Sybase Inc.

.NET ENTERPRISE SERVERS	KEY COMPETITORS
DATABASE	
SQL Server: Web-enabled database and data analysis software	IBM DB2, Oracle9i, Sybase Adaptive Server Enterprise
MESSAGING/COLLABORATION	
Exchange Server: Software for messaging, calendaring, scheduling, instant messaging and collaboration	Lotus Domino (IBM), iPlanet Messaging Server, iPlanet Calendar Server
SharePoint Portal server: Software for building and customizing intranet, or portal, sites that pull content from a wide range of sources	IBM WebSphere Portal, Oracle Application Server Portal, iPlanet Portal Server, BEA WebLogic Portal, Sybase Enterprise Portal
APPLICATION/INTEGRATION	
BizTalk Server: Translates or maps data from one format to another; securely delivers messages; designs and manages business processes. For business-to-business use and internal application integration. **Host Integration Sever:** Provides application, data and network integration to legacy systems **Note:** The Windows server operating system has a built-in application server.	IBM WebSphere Application Server, IBM WebSphere MQ, Oracle9i Application Server, iPlanet Application Server, iPlanet Integration Server (B2B edition), iPlanet Integration Server (EAI edition), BEA WebLogic Server, BEA WebLogic Integration, Sybase EA Server, Sybase eBiz Integrator and eBiz 2000, Sybase Business Process Integration Suite
WEB SITE/COMMERCE	
Commerce Server: Software for development and management of e-commerce sites **Content Management Server:** Helps manage, personalize and deploy Web site content **Application Center:** Helps configure, manage, monitor and load balance Web applications built on the Windows server operating system	IBM WebSphere Commerce Suite, IBM Content Manager, iPlanet Market Maker, iPlanet Buyer Expert, iPlanet Biller Expert, (B2B and Consolidation editions), iPlanet Trustbase Transaction Manager, Oracle9i Application Server
SECURITY/DIRECTORY	
Internet Security and Acceleration Server: Enterprise firewall and Web caching software	Tivoli Identity Director (IBM), Tivoli Policy Director (IBM), Tivoli Intrusion Manager (IBM), iPlanet Directory Server, iPlanet Certificate Management System
MOBILE/WIRELESS	
Mobile Information Server: Lets mobile device users securely access e-mail, contacts, calendar information and intranet applications in real time. (Will be discontinued next year.)	IBM WebSphere Everyplace Server, Oracle9i Application Server Wireless, iPlanet Portal Server (Secure Remote Access Pack), Sybase iAnywhere m-Business Studio

Quick Link For a comprehensive comparison of Microsoft's server stack and those of its competitors, visit our Web site: **www.computerworld. com/q?27720**

Mirroring Cuts Data Center's Recovery Time

Asynchronous Transfer Mode is key to backup speed. By Lucas Mearian

FINANCIAL SERVICES company Pershing last month completed the installation of a mirrored data center that has reduced the firm's data recovery time from more than 24 hours to about one hour.

Pershing is using IBM's Geographically Dispersed Parallel Sysplex (GDPS) and Extended Remote Copy (XRC) software to instantly copy information from the disk storage in the primary data center to the mainframe in a secondary data center. IBM claims that the $50 million disaster recovery data center is the biggest mirrored facility based on its technology.

Jersey City, N.J.-based Pershing, a division of Credit Suisse First Boston Corp., moved from a daily batch-processing system to mirrored data centers in New Jersey. With the new technology, more than 20TB of the firm's information from a primary storage-area network (SAN) is automatically copied to a backup, mainframe-based SAN in about nine seconds using Asynchronous Transfer Mode (ATM) technology.

Construction of the facility began last March and was completed in December. That project included upgrades to Pershing's "dark," or unused, fiber network and the data centers.

DATA RECOVERY

Dianne McAdam, an analyst at Illuminata Inc. in Nashua, N.H., says Pershing's use of IBM's XRC technology between the New Jersey data centers, which are separated by more than 30 miles, makes the project somewhat unique. That's because of the speed of the data transfer — thanks to ATM technology — and how quickly the brokerage executed the project, she says.

"Other replication technologies don't sequence [data packets] and might deliver an update [out of order]," McAdam says. "Let's say you lose the link; now you've got garbage on the other end. You may have a database that's not usable because updates were not received in the right order."

Pershing's CIO, Suresh Kumar, declines to say exactly how far apart the data centers are, citing security concerns. However, he did say that he's hoping to run mainframes from both data centers using IBM's GDPS software.

Faster Fiber

GDPS has been limited to campus settings because mainframes require responses in short periods of time. As fiber-optic technology improves, the distance restrictions will be removed and the two data centers will be able to share data, McAdam says.

"With faster fiber, we [share data] today with a distributed [server] environment. We have 1,000 servers — both NT and Unix — and are able to send traffic simultaneously . . . without losing data," Kumar says. "In the next phase, there'll be no need for mirroring. We'll share data in real time on multiple platforms in multiple sites."

Pershing deals with 36 million customer information system transactions per day — the equivalent of 2,000 transactions per second, says Kumar.

The mainframes of Pershing's primary data center write data to the primary disk storage subsystem. Where a mirrored data center would normally save the data synchronously to the secondary data center's disk subsystem, Pershing's system is asynchronous, meaning the primary site doesn't wait for confirmation that the secondary site has received the data.

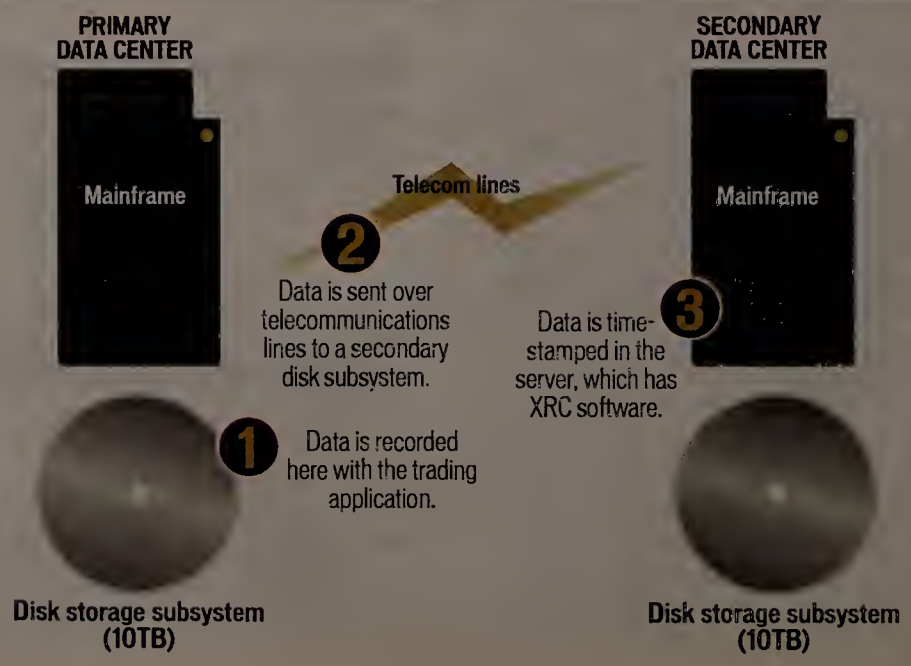
Instead, the transaction goes over fiber-optic lines to the secondary site's mainframe, where remote copy software resides, and places a unique time stamp on them. It writes the data to the disk subsystem in the same order in which it was received from the primary site.

"The challenge was, we had to upgrade the microcode in the production environment. To do that, we had to be confident this would work," Kumar says. To build that confidence, IBM's Global Services division first set up a replica of Pershing's data center in a Tucson, Ariz., test facility, where microcode updates were made and then tested. IBM then introduced them into the production system at Pershing.

"It led to zero production-environment impact for us," Kumar says.

Pershing's ATM Data Mirroring

All applications in the primary data center's mainframe write data to the primary disk storage subsystem using ATM technology over dedicated fiber-optic lines.



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- **Rowland Archer** | CTO, HAHT Commerce
- **Ian Baird** | CTO, Chief Grid Strategist & Chief Business Architect, Platform Computing
- **Kent Beck** | Director, Three Rivers Institute
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- **John Blair** | Co-founder, President, & CEO, Kenamea
- **Grady Booch** | Chief Scientist, Rational Software
- **Jon Bosak** | Online Information Technology, Sun Microsystems
- **Tim Bray** | CEO & Director, Antarcti.ca Systems
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- **Dave Burleigh** | Technology Visionary, ValuationRepairman.com
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IT Goes to War

The battlefield of the future will be computerized and networked. By Gary H. Anthes

THE U.S. ARMY has seeded a field with antitank mines, but the enemy has managed to clear a path through the mines and is advancing. But before the tanks can get very far, mines from some distance away hop into the cleared area.

The military calls this a self-healing minefield. The robotic mines, which are being developed by Sandia National Laboratories, are fitted with radios, acoustic ranging sensors and communications software that automatically establishes a network with other mines in the field. When a mine's onboard computer learns that the minefield has been breached, it coordinates with nearby mines and then fires a one-cylinder combustion engine connected to a foot on which it hops to where it's needed most.

Inspired by fresh lessons from Afghanistan, laboratories across the U.S. are creating tools for the battlefields of the future. They include such esoterica as robots that can crawl into caves, sniff out people and explosives, and radio their findings to U.S. commanders miles away; helmets fitted with communications gear and computer displays; and bombs that can serve as sensors, computers and communications devices in the seconds before they explode.

IT is tying these disparate technologies together for what the U.S. Navy calls network-centric warfare (NCW). The idea is to link every war-fighting asset so that information can be quickly shared, analyzed and acted on.

"It's the ability to aggregate separated combat forces so they become totally synchronized," says John Robusto, director of NCW at the Naval Air Systems Command.

NCW rests on two technological underpinnings. The first is the network itself — "a self-describing, self-healing, self-annealing network," explains Robusto.

SANDIA NATIONAL LABS is developing robotic sentries to investigate alarms from intrusion-detection sensors (top), while engineers at The Boeing Co. are developing battlefield network software at a new lab.

In this scenario, virtually every military asset, from sensor to ship to soldier, will have two-way IP ports, and many will communicate on a peer-to-peer basis. Communications hardware and software will be embedded in them, and they will automatically add themselves to a wireless network when they power up, Robusto says.

"You'll have thousands of these things interacting in mobile, ad hoc, self-organizing networks," says Carl O'Berry, vice president for strategic architecture at Boeing Space and Communications in Seal Beach, Calif. "The networks' membership changes, and the relationship between members may be only a few milliseconds."

The company is developing the protocols and software to enable that kind of communication at its new Boeing Integration Center in Anaheim, Calif. O'Berry says they will be ready by year's end.

The second component of NCW is the analysis that's performed on the flood of information moving through the network. Robusto says the military will use inferencing engines, agent-based computing and neural networks to turn raw data into battlefield interpretations and suggested combat actions, or "kill chains."

"We'll have an inferencing engine that will say, 'This is a mess of information, and here's what it might mean,' " Robusto says. "And another one will say, 'I need to find something — an antiaircraft site or a mobile missile. Please tell me what things in your sensor network have that information.' "

Soldiers of Tomorrow

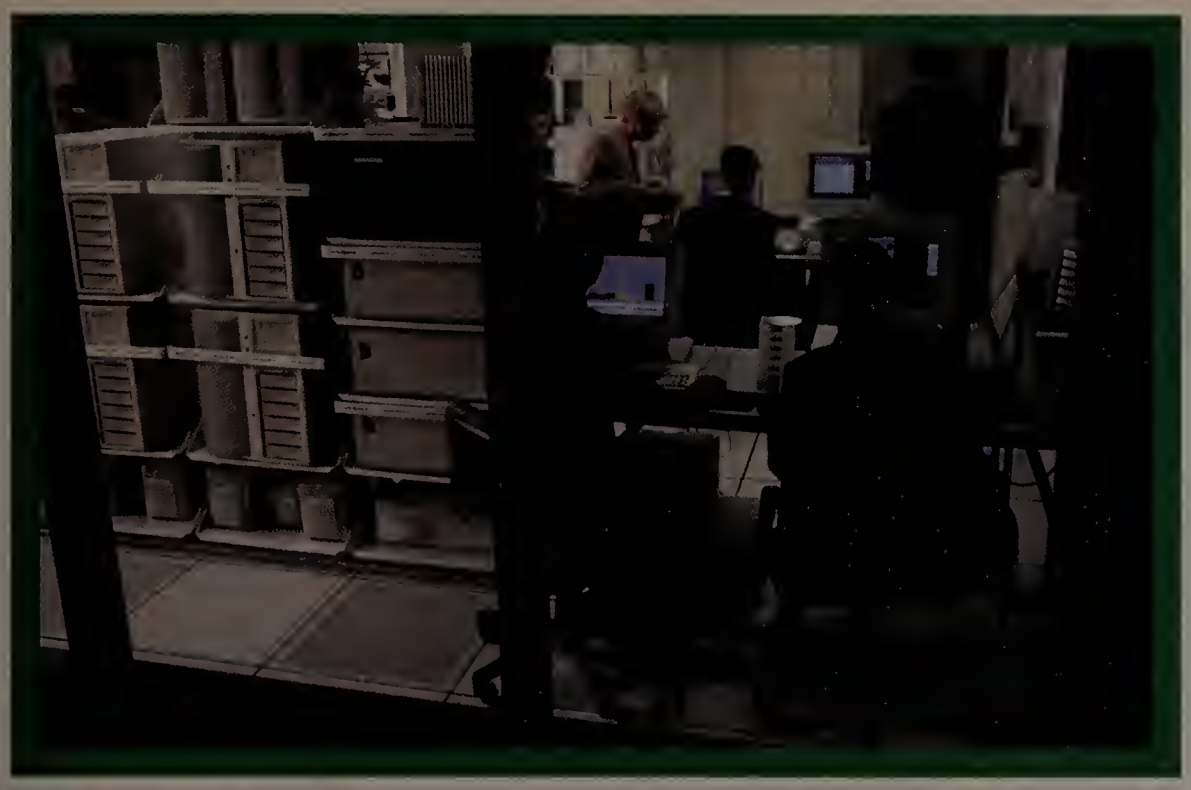
Oak Ridge National Laboratory in Oak Ridge, Tenn., says it hopes to develop by 2010 "a high-tech soldier with 20 times the capability of today's warrior." His helmet will be fitted with wireless communications gear, 3-D visual displays and software that tells him precisely where he is and where friendly and unfriendly forces are. The helmet will support voice command retrieval of data from sensors and other sources using intelligent software agents.

Meanwhile, Albuquerque, N.M.-based Sandia is developing robots that can operate in the air, underwater and in hostile battlefield conditions, including minefields. But building systems that can listen, communicate, think, move and explode — all while resisting attack — isn't easy, says Rush Robinett, manager of intelligent systems controls at Sandia.

"You need multidisciplinary skills — computer science, chemistry, physics, electrical and mechanical engineering," he says. "You have to change the way you think about problems."

Another issue is the expense, Robinett says. If you're going to sacrifice thousands of robots in a mission, they can't cost tens of thousands of dollars apiece. Sandia is working with toy companies to see how they can be built at a low cost.

Quick Link: For more about the benefits and risks of using software on the battlefield, visit: www.computerworld.com/q?27497



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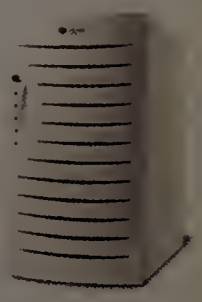

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Checkpoint and Restart

BY LEE COPELAND

HAVE YOU EVER toiled for hours on a document only to have your computer crash just as the last line gets written? From that type of experience, most users learn to save early and often so their work can be restored in the event of a crash.

The mechanism for protecting operating systems and enterprise applications from crashes is no different. But instead of being called save and restore, it's called checkpoint and restart (CPR).

Basically, checkpoint/restart mechanisms allow a machine that crashes and is subsequently restarted to continue from the checkpoint with no loss of data, just as if no failure had occurred.

"It's important in all computational-intensive programming," says Ed Hall, a research computing system analyst at the University of Virginia in Charlottesville. "You need to have the ability in case the system crashes or, if it's a batch system with a time limit, to terminate at a given time."

At some firms and supercomputing centers, it's common practice to break up long-running computational programs into several batches. Programs such as a gene-sequencing application search through enormous databases and execute complex algorithms that can take several weeks to complete.

DEFINITION

Checkpoint and restart are mechanisms for protecting operating systems and enterprise applications from computer failures by taking a snapshot (the checkpoint) of the system and data at critical points. If the system or process crashes, it can be restarted from the most recent checkpoint file, without having to go back to the beginning and rerun everything.

Typically, at certain time intervals or at the beginning of the business day, these long-running programs get intentionally stopped after a checkpoint so that smaller jobs can then be processed. When the smaller jobs have finished, the larger program restarts at the last checkpoint.

But while the concept is easy to understand, the technical mechanism to checkpoint and restart an operating system or application is quite complex.

OS Vs. Application

Checkpointing can occur either within the operating system or at the application level.

Most mainframes and high-end server operating systems, such as Mountain View, Calif.-based Silicon Graphics Inc.'s Irix or Seattle-based Cray Inc.'s Unicos, have automated CPR utilities. CPR at the operating system level saves the state of everything that's being done within a given application at periodic checkpoints and allows the system to restart from the last point. This type of checkpoint enables a user to shut down a computer and bring it up again without losing any work.

However, on very large computers with hundreds or thousands of processes running, saving the entire state of an operating system can take a long time. It also takes a long time to later restart the machine at that state — on large jobs, it could take several hours. The recovery is delayed because a large amount of data must be stored, whether or not the application requires that information to fully restart it.

"Checkpointing at the operating system is useful but very costly, in that the operating system does not know what data the application really needs to restore it later, so it blindly saves everything," explains James Kasdorf, director of special projects at the Pittsburgh Supercomputing Center.

"If you imagine a machine with the same data replicated on 512 processors, a system-wide checkpoint does not know that and it saves everything, so you end up with hundreds of unneeded copies of data, program code and system libraries," he says.

Checkpointing at the application level is the other option. To perform CPR within the application, the application uses operating system hooks that enable it to save the relevant resources and data needed for a restart.

At the application level, a developer can pick an optimal point — typically at the end of an iterative cycle — to perform a checkpoint to make the process more efficient, according to Reagan Moore, principal investigator for scientific computing at the San Diego Supercomputer Center.

This type of application-centric CPR can be more efficient because only needed data gets saved, making it easier to checkpoint the application and quick to restart later.

The challenge with application CPR is that it's difficult to do in some cases, such as if the application has an open communications channel to an external device or the application runs on a clustered computer. In these cases, it's difficult to save the state of an application as it gets communicated across several network nodes, Moore says.

It also takes longer to checkpoint and restart applications with large buffer memory.

According to Kasdorf, the best way to optimize the checkpoint and restart process is to have fast I/O speeds on the computer. If the checkpoint data can be written quickly to the disk, then frequent checkpoints won't result in a long CPR process. ◗

Lee Copeland is a freelance writer in Chicago.

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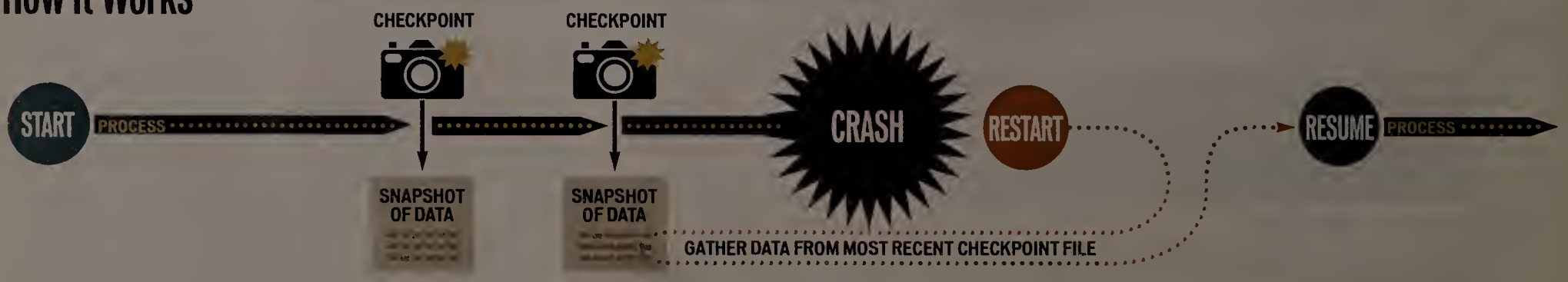

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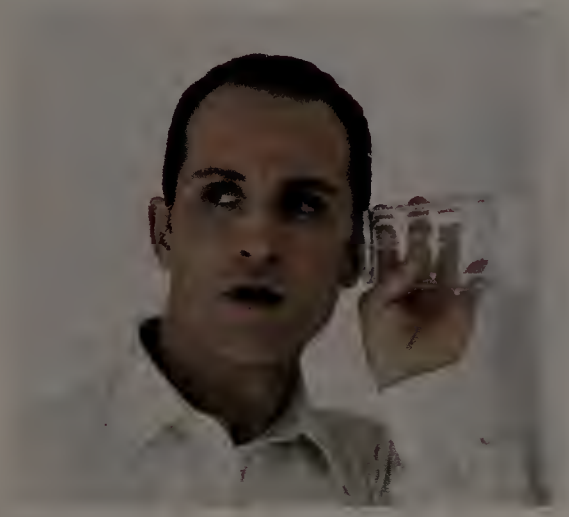

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SNMP Vulnerability Offers 3,200 Reasons to Worry

A security hole that affects thousands of network devices, plus a new virus, set Vince Tuesday on edge

BY VINCE TUESDAY

THE PAST few weeks haven't been a complete disaster, but I have to dig deep to find the silver lining in recent events.

It started when the Finland-based University of Oulu's security research team released a series of vulnerability warnings about Simple Network Management Protocol (SNMP) v1 implementations. Last year, the team released a similar warning about the Lightweight Directory Access Protocol (LDAP) that was entirely accurate, so I was sure it was right again.

SECURITY MANAGER'S JOURNAL

LDAP servers aren't that common — we have four, which we patched quickly. SNMP servers are a different story. Everything seems to come with an SNMP interface; I hear even some digital cameras are affected by SNMP problems. Certainly, every major system and network operating system is at risk.

We have 4,312 network devices. Of those, 75% — about 3,200 — run SNMP and need to be patched. Luckily, we block SNMP from the outside world and don't publish anything to third parties via SNMP.

By the time you read this, however, I expect some bright spark will have written a chunk of malicious code that spreads via the SNMP bug and also uses Web sites or e-mail to propagate itself. Despite our excellent layered antivirus strategy, I'd be kidding myself if I didn't think it was possible for such code to get into the company. And once it got there — ouch!

Since almost every system, from desktops to servers and printers to networks, is vulnerable, this is one attack that could cripple everything. I'd rather not think about that; I just have to start the race to get the patches in or the SNMP servers disabled before a new virus appears.

We've also taken a closer look at SNMP probes of our firewalls to see if this weakness is already being attacked. Although there has been some growth in the number of probes, it hasn't been an explosive increase, like the one we saw in secure-shell probing when bugs were announced regarding CRC32 handling in the protocol.

We did detect one of our software providers trying to send thousands of SNMP traps to our central network-monitoring systems. It seems we sent the company an example of our configuration, including where to send alerts, for testing purposes. The provider has been using the configuration on a system that can see the Internet, and it's been merrily sending alerts to our firewall. As we renumber our internal networks to RFC1918 private address ranges rather than the Class B addresses we currently use, this kind of problem should disappear (see glossary).

An Insidious IM Virus

While we wait for the ax to fall with an automated exploit of the SNMP weaknesses, my thoughts have turned to other virus writers. In general, I pity and hate people who write viruses. The majority of virus codes show no particular skill and are obviously lifted wholesale from previous successful viruses. I'd much rather these people spent their time doing something constructive. I expect that the people who clean graffiti off subway trains have similar feelings toward vandals.

But I bet that those workers sometimes come across a piece of graffiti that transcends the medium and almost becomes art. The recent MSN Instant Messenger (IM) virus includes some impressive features, and I have to show some grudging respect to its author.

In an obvious display of originality, the virus uses a new medium to spread — in this case, IM. When initiated, the code sends a message to all your buddies telling them to visit a Web site. It also lets them know that if they're sick of these messages, they can go to another Web site to stop the invitations. The first Web site contains 60 lines of malicious JavaScript that takes advantage of an Internet Explorer bug to run without constraint and open the messaging software and spread further.

The unsubscribe site just takes you to the first site, ensuring that once you've infected all your buddies and their messages have flooded you, you reinfect yourself while trying to unsubscribe.

The code itself is better-written than most commercial code I buy. It checks to make sure that you're vulnerable and that you have the right version of IE before running so it doesn't pop up with errors that might help you realize you have a virus. If your security settings are configured so that it can't run, the virus shows you a "warning" and explains how to reduce your settings to supposedly get the most out of the site you're visiting.

I don't use IM myself, but several members of my team got hundreds of copies of the message, which spreads quickly. This version doesn't do anything other than propagate and disrupt IM communications, but because the code is freely available for download on the link sent to everyone, it won't be long before someone releases a destructive variant. To protect ourselves, I've pulled the plug on IM until we have patches in place.

But this week hasn't been all bad news. Yes, we are wide open to the SNMP bugs and will have to work hard to patch devices before the sky falls. Yes, a whole new arena of virus threats has been invented, meaning we have to disable a service until we can be certain it's safe. These are hardly victories in the war for a secure company. But at least we have been able to complete the next phase of our perimeter testing.

We had been using phone hacker Chris Lamprecht's ToneLoc program for phone testing, but the software isn't very user-friendly. Instead, we have just tested PhoneSweep from Sandstorm Enterprises Inc. in Cambridge, Mass. This professional tool allows us to scan and probe our private branch exchange and other lines to make sure no workers have connected via an unauthorized modem to bypass our firewall. Now we can focus on the next stage — wireless LAN identification and tracking — while our modems ring every number in the company. ◗

THISWEEK'SGLOSSARY

RFC1918: This Internet Engineering Task Force request for comment specifies the following three ranges of IP addresses exclusively for internal network use:
- 10.0.0.0 – 10.255.255.255 (10/8 prefix)
- 172.16.0.0 – 172.31.255.255 (172.16/12 prefix)
- 192.168.0.0 – 192.168.255.255 (192.168/16 prefix)

Correctly configured Internet routers won't allow packets within these address ranges through to the Internet. To allow internal computers to communicate with others outside the firewall, the router (or firewall) uses network address translation to associate internal addresses with valid external ones. For more information, visit *www.faqs.org/rfcs/rfc1918.html*.

LINKS:

***www.ee.oulu.fi/research/ouspg/protos/testing/c06/snmpv1/index.html*:** The University of Oulu takes the spotlight again with its SNMP vulnerability warning. My advice: Find out what the university's security team will investigate next and turn it off in your environment before the team releases its next report.

***www.cert.org/advisories/CA-2002-03.html*:** Read the details of the SNMP warning from the CERT Coordination Center at Carnegie Mellon University.

***https://gtoc.iss.net/snmpvendor.pdf*:** This useful summary at the Web site of Internet Security Systems Inc. lists network equipment vendors and their current status regarding the SNMP vulnerability.

***http://vil.mcafee.com/dispVirus.asp?virus_k=99356&*:** Got the MSN IM virus? McAfee.com Corp. offers details on the virus and how to eradicate it.

Quick Link Discuss this week's column and catch up on the latest security developments online at: **www.computerworld.com/q?q2000**

■ This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com or go to the Security Manager's Journal forum.

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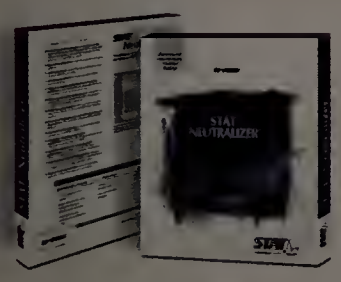

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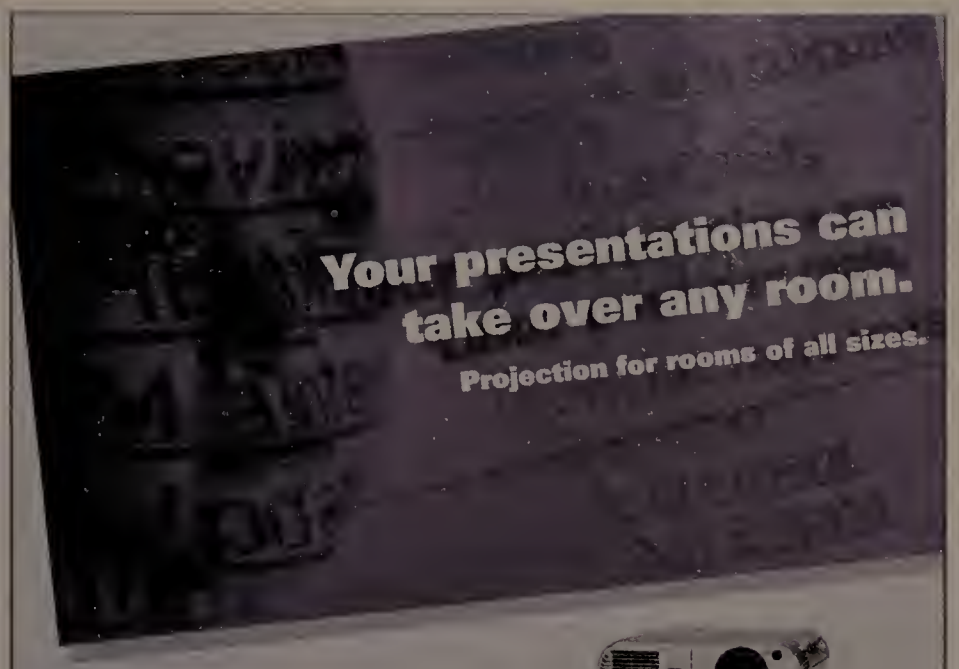

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Several computer related positions available for large software development, support and sales company. Degree, technical skills & experience vary per position. Send resume to Jim Pearce, Thru-Put Corporation, 2099 Gateway Place, Suite 240, San Jose, CA 95110.

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Systems Analyst to analyze and develop reports and applications using SOL and Visual Basic; convert FoxPro applications to SOL and Visual Basic applications; maintain SOL data warehouse, FTP, file conversions, uploads, and other applications using Crystal Reports and Pro-Clarity applications; and analyze user requirements, procedures, and problems to automate or improve existing systems and review comp. Sys. capabilities, workflow, and scheduling limitations. Req. M. S. in Comp. Sci. or Engineering or related science. $45k/yr, 40hrs/wk. Send recent resume to: Kathy Londow, MMCC, 1407 Union Ave., Suite 200, Memphis, TN 38104. Ref. Code: TN-JZ

ABB Network Management in Sugar Land, TX seeks experienced and Alpha-Unix, RANGER SCADA/EMS/DMS, CISCO and SCCS skills. Resumes to H.R. Mgr. AJT/mas 1601 Industrial Blvd., Sugar Land, TX 77478 or on-line to resumes@abbnm.com

PROGRAMMER ANALYST needed by IT Co., in Lawrenceville, NJ. Will dsgn, dvlp, test & implmt commercial applics using Oracle 8.0 & 7.x & tools under UNIX, SOLARIS, VMS Windows. Will also engage in d/base admin. BS deg & 3yr exp. Send resume to HR Mgr by fax: (609)912-0605.

TECHNICAL PRE-SALES ENGINEER-Wanted by Software Development Company. Requirements include Bachelor's Degree in Computer Science or related field or equivalent with 2 yrs of experience. Please respond to Robyn Bello, HR Representative, IONA Technologies, 200 West Street, Waltham, MA 02451.

Systems Analyst: Design, develop & prog. software for integrated banking systems inc. teller use loans, checking & savings acct., tellers of credit invt. Funds, based on needs if Latin America Banks & Financial Inst. Works w/IBM platform w/AS 400 system, Devp. banking prog. to interface w/the int. 40 hrs per wk, 9A-5P, 3 yrs exp. in job offered. Fax resume to (305) 377-3282.

Programmer/Analyst wanted by investment mgmt co in NYC to analyze, design, prgm and maint finc'l mgmt & statistical research applications for on-line web-based system. Unix, Intersystems Cache DB, CGI, C/C++. Resumes to Paradigm Global Advisors, 12 E. 49th St., NY, NY 10017.

Systems Analyst with business applications experience in ERP environments for Sr. Consultant position in Independence, OH. Travel required. Send resume to HR Administrator EM/ks, SAIC, 5001 Rockside Rd., Crown Centre II, #700, Independence, OH 44131.

MANAGER (Technical) wanted by Edison, NJ based Co. for job locations throughout the US. Must have Master's degree in Comp. Sc., Engg., Mgmnt., Bus. Admn. and proficiency in ERP (e.g. Oracle Apps., BAAN, SAP) and 4 yrs. of exp. in Comp. S/W developing end/or consulting in ERP type projects. Respond to: Savant Consulting Group, Inc., 505 Thornall Street, Ste. 205, Edison, NJ 08837. Ref.: 8018RG.

PROGRAMMER ANALYST needed by IT Co., in Lawrenceville, NJ. Will dsgn, dvlp, test & implmt commercial applics using Oracle 8.0 & 7.x & tools under UNIX, SOLARIS, VMS Windows. Will use Forms 4.5, Forms 3.0, reports 2.5 & report writer Pro C prgmg. 3yr exp & BS deg reqd. Send resume to HR Mgr by fax: (609)912-0605.

Applications Developer with experience in solutions for international commerce logistics, using Oracle RDBMS, Oracle Developer, PL/SOL, Java, Html, xml. Attn: K. Smallwood, ClearCross, Inc., 11911 Freedom Drive, Reston, VA 20190. Resumes to: Ksmallwood@clearcross.com. No Phone Calls.

SOFTWARE ENG I Formulate/design complex operating software program apps specs, modify/maintan complex existing apps, design/code/test/implement programs. B.Sc. Computer Sci, Business, Economics, related field or equiv. req'd. Must be proficient in Visual Basic, ASP, Config. Mgmt & Accurate Devel. & Support. $45,595/yr. 40 hrs/wk, OT as need. Send resume to: C. James, John H. Harland Co, 2939 Miller Rd, Decatur, GA 30035.

Software Engineer: Research, design, and develop software systems end applications using IBM 3090, MVS, IMS DB/DC, COBOL II, CICS, JCL, Endevor, Panvalet, InterTest, Smart Test, Viasoft, end Xpeditor. Perform functional and business requirement analysis. Customize/enhance/configure/integrate software systems and coordinate installation. Develop and direct software system testing procedures and perform unit and Integration testing. Provide production support. Must have a Master's degree or equivalent in Comp. Science or Engineering. Will consider candidates with BS and five years experience in lieu of master's degree. Job in Charleston, WV and other locations. Multiple positions. $60,000-70,000/year. Send resume to HR, U.S. Professionals, LLC, 518 Roxalana Hills Dr., Dunbar, WV 25064. Fax (304) 768 4047. E-mail: jobs@uspcorp.com

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Programming Manager needed for Oveido Engineering, Medical and Telecommunications co. to convert scientific, engineering and other technical problems to format processable by a computer. Min req. Bach. Degree in Industrial Technology or Industrial and Systems Engineering plus 4 yrs exp. Send resumes to Alicia Diagnostics, Inc. 1274 Alafaya Trail Oveido, FL 32765.

TECHNICAL ACCOUNT MANAGER-Wanted by Software Development Company. Requirements include Bachelor's Degree in Computer Science or related field or equivalent with 4 yrs of experience. Travel may be required. Please respond to Robyn Bello, HR Representative, IONA Technologies, 200 West Street, Waltham, MA 02451.

Programmer Analyst needed to analyze, design, develop & test the software applications with experience in Borland C/C++, Visual C++, C++ Class Libraries, MS SOL Server, ASP, Visual Basic, Java, ActiveX, HTML & Rationale SOA Suite is necessary. Send resumes to: Ektron, Inc. 5 Northern Blvd #6, Amherst, NH - 03031.

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SYSTEMS QUALITY ASSURANCE (QA) ANALYST to document and perform internet application testing to insure the quality of code and functionality. Build test scripts and processes, upgrade system and correct errors to maintain system after testing. Qualified applicants are required to possess at least a Bachelors degree in Computer Science, Information Systems, Engineering or it's equivalent plus two years of QA experience. Extensive knowledge and experience in internet technologies, HTML, ASP, NT, Loadrunner and Webload preferred.
PROGRAMMER ANALYST to plan, develop, test, document and update computer programs to increase operating efficiency. Enter program codes into computer systems, evaluate user requirements, monitor performance and provide technical assistance to program users. Qualified applicants are required to possess at least a Bachelors degree in Computer Science or it's equivalent. Sound knowledge in internet applications, HTML, SOL, ASP and ORACLE preferred.
PRODUCTION ENGINEER to test, maintain and modify various software systems. Build test scripts and processes, implement databases, design database schemes and enforce deta integrity and security. Write structured PL/SOL code and shell scripts to improve the productivity of administrators/system users. Optimize UNIX server and network performance using UNIX tools, and monitor performance and provide technical assistance on all IS related issues. Qualified applicants are required to possess at least a Bachelors degree in Computer Information Systems, or it's equivalent. Sound knowledge in SOL, Oracle, Visual Basic, HTML, C++, JAVA, Database and System Analysis design, and statistical packages preferred.
SENIOR PROGRAMMER ANALYST to plan, develop, test, document and update computer programs, provide counseling on the selection of database administration tools for all Oracle databases within the company, and setup, maintain, support and upgrade all Oracle Databases and Applications. Qualified applicants are required to possess at least a Bachelors degree in Computer Science or it's equivalent plus two years of relevant experience. Strong background/expertise in Oracle, Unix, SOL, PL/SOL, Pro*C, C, HTML, database administration and web development desired.
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Sr. Systems Analyst: Design, analyze, develop, test, implement and maintain client/server projects on WINDOWS NT DCOM. Develop software applications using Microsoft Visual C++ 6.0, Visual Basic 6.0, Crystal Report Designer 8.0 and HTML. Work w/OLAP for multi-tier applications using ATL/DCOM. Supervise programmer/analysts & IT personnel during application installation, implementation & maintenance. Req. M Sc. or its foreign degree equivalent in CS or other closely related field + 2-yr exp. in job described. Resume to: Bob Stevenson, Staffing Manager. Ref. Job # SAF-220, Enterprises Computing Services, Inc., 8744 Main St., Ste. 101, Woodstock, GA 30188

"SYSTEMS ANALYST: Responsible for systems development & production support. Work experience in the following Information Technologies: Mainframe Based Applications, Altamira Banking Software, CICS, MVS, TSO, ISPF, DB2, PACE, COBOL, RPG400, SAFE, JCL, VSAM organization, analysis, design & structured programming methodology. All modules of Abanks front desk System and SIMM Information Banking system. Experience redesigning & programming General Ledger applications from Mainframe to AS/400 using Cobol400 and RPG400. Ability to work on all phases of application development from gathering & analyzing user requests up to deploy in production.Min. 4 yrs exp. in job offered. Competitive salary, F/T, Mon-Fri (may require evening & weekends), must be willing to travel & relocated as necessary, position available in Ft. Lauderdale, FL. Monica de los Riosat Softtek: 2900 University Drive, Coral Springs, FL 33065"

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Senior Oracle DBA/Systems Architect. Jersey City. Bachelor Degree or equivalent in Computer Science or related. 2 yrs. exp. as follows: Languages: SOLPlus, PL/SOL, SOL Forms (4.5, 3.0, 2.3), SOL Report Writer (2.0), Forms (2.3, 3.0, 4.5), SOLMenu (5.0), PL/SOL (2.0), Tools: Oracle Backup Enterprise Utility, Oracle SOL Backtrack, Chain Link Object Migrator (2.0), Sybase, OLAP technology, Unix Shell Scripting, Cron processes, SOL Scripting, C, csh, ksh, PERL scripting, ProC, Visual Basic. Operating Systems: MS-DOS, UNIX SVR 4.0, HP-UX 10.2, Solaris 2.5.1, Solaris 2.6, Solaris 2.7, Solaris 2.8, ows NT, Mac OS, Digital Unix 4.0b, HP9000, AS400, Digital, AIX Client Server, Alpha, Red Hat Linux. 40 hrs. per week, 9 a.m. through 5 p.m. Monday through Friday. Send resume Attn: StratPro Limited, Job #15, One Exchange Place, Suite 1000, Jersey City, N.J. 07302.

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In the world of biological research and pharmaceutical development, the keys to major discovery are in the data. The challenge is in determining what data links to which research, where seemingly unrelated studies may provide a clue and how to eliminate dead ends as soon as you can. In other words, biotechnology rests in large part on the information technology that works the data for microbiologists.

Michael Wyrick, director of IT Consulting Services for **KMI**, a division of **PAREXEL International LLC (KMI)**, said the industry is relying on computer systems to move drugs to market more quickly. "Through technology, companies are able to handle more compounds and eliminate potential compound failures faster," Wyrick said. "There is only so much research dollars funded to follow developing compounds, so it's important to eliminate non-working solutions fast."

To assist its customers, **KMI** hires IT professionals with computer skills (network, desktop computing, database management, software development, platform qualification and computer validation) and FDA-regulatory experience. "However, some candidates that have the right skill set but who lack the knowledge about FDA regulations can be trained to understand how their current skill sets can be used in an FDA-regulated environment," Wyrick said.

InforMax is a veteran in the world of bioinformatics, having served major laboratory research facilities and pharmaceutical companies for 11 years. The goal is to help scientists extract value from the massive databases that have evolved in a few short years. "From cloning to genetic research to molecular medicine, the industry has changed dramatically over the past 36 months," explains Steve Lincoln, executive vice president of product development and chief scientific officer for the Bethesda, MD, company. "Biology traditionally was a qualitative science and most results were based on human interpretation of specific experiments. That has now changed to a quantitative science," he says. "We are discovering new biology by mining enormous and complex databases using sophisticated algorithms and visualization tools. The people working in life sciences must have easy access to data or lose their competitive advantage."

Lincoln stresses that the competition may be monetary, but it's also often a matter of life itself – people use bioinformatics software to help develop new drugs to treat cancer and other diseases. "We've developed computer software to help cross validate, to reduce the 'noise' in the data stream," he says. "Just as important is developing a user interface that biologists can use and integration tools that can link data that is constantly moving and changing."

InforMax hires IT professionals with skills in database design, software design, production level coding, quality assurance and project management. "Our employees are similar to most any professional software development organization," says Lincoln. "What we can offer is an additional opportunity to become involved in the science. "In terms of the software industry, this is definitely a niche," Lincoln says. "But this is a niche with an upward trajectory in systems ranging from database mining to image processing, high performance algorithms and warehouse design."

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Programmer Analyst consulting positions (multiple openings) to analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software. Analyze science, engineering, business, and other data processing problems for application to electronic data processing systems using Enterprise Resource Planning (ERP) and related software. Must travel and relocate frequently. Bachelor's degree or foreign equivalent or equivalent combination of education and experience, in one of several limited fields: Computer Science/Applications, Engineering, Chemistry, Math, Physics, or scientific or business related field. Candidates must have one year of experience using one of the following: SAP, BAAN, Peoplesoff, J.D. Edwards, ORACLE Applications/Financials/Manufacturing/HR. Candidates must have one year of experience in the job offered or as a computer professional. $67,000 per/yr, 40 hrs/wk. Please submit resumes to: Fayette County Team PA CareerLink, ATTN: JS Supervisor, 32 Iowa Street, Uniontown, PA15401-3513, Job Order #: WEB 229182.

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RICE / LM Technical Developer. (Troy, Michigan). Requires a Bachelor's degree (or higher) or equiv. foreign educ. in computer science, management information systems, or an eng. field, & 2 years' exp. in the job offered or 2 years' exp. in developing SAP R/3 modules for materials management, warehouse management, production planning, and sales and distribution using ABAP/4. All stated experience must have included: development and configuration in EDI (electronic data interchange) and ALE (application link enabling); development of BAPI's (business application programming interfaces), BADI's (business add-ins), and RFC's (remote function calls); utilization of SMD (shared master data) and Workflow tools; troubleshooting tRFC's (transactional remote function calls) between SAP R/3 and label mgmt. systems; and performance tuning, index management, and writing of Stored Procedures and Triggers in an MS or Sybase SQL technologies environment. Exp. must include one full lifecycle of SAP R/3 development. Engage in the development of SAP R/3 modules for materials management, warehouse management, production planning, and sales and distribution over a full lifecycle using ABAP/4. Engage in development and configuration in EDI and ALE, including ALE distribution model, to facilitate SAP R/3 communication with external and internal systems. 40 hrs./wk. 8:00-5:00. Apply with resume to Jennifer McKenzie, Delphi Automotive Systems Corp., 1450 W. Long Lake Road, Troy, Michigan 48098.

Data Communications & Network Consultant. Job location: Anchorage, AK. Duties: Design, develop & implement internet & intranet appls. for the oil & gas ind. using tools such as ASP (Active Server Pages), SOL+, CSS, HTML & JavaScript. Perform business analysis & use proj. mgmt. methods to recommend data & network solutions to clients for integration of business processes & procedures. Write detailed descrip. of functions & steps necessary to develop or modify software appls., comp. systems & processes using PowerDesigner, Visio, Toad, Visual Studio & FrontPage. Prep. client proposals & participate in presentations to clients. Requires: M.S. in Comp. Sci., Eng. or related field. Coursework must incl. classes in Oper. Systems & Software Eng. EOE. 40 hrs./wk; 8:00 a.m. to 5:00 p.m. Send resume (no calls) to: Molly Stone, CTG, Inc., 800 Delaware Ave., Buffalo, NY 14209-2094.

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HP/Compaq

but will still release another version of Alpha, called Marvel, later this year. Alpha technology will be made through 2006 and supported through 2011, a Compaq official said.

Kuff said high-end users processing millions of transactions per second need to feel secure that new Alpha replacement technology won't be delayed by the merger.

Some Compaq customers, however, see the merger as a way to keep alive the high-end technology Compaq acquired from Digital and from its 1998 purchase of Cupertino, Calif.-based Tandem Computers Inc. The 12-member board of ITUG, a Chicago-based Compaq user group devoted to Tandem servers such as the NonStop Himalaya, has unanimously endorsed the merger.

"Aligning the R&D programs and marketing resources of Compaq and HP that are focused on enterprise servers will result in increased market awareness for the NonStop platform," said ITUG Chairman Yves Rouchou. Rouchou is also director for quality and security and IT purchasing at Euronext Paris SA, the stock exchange in Paris, which uses NonStop platform.

Likewise, Mark Brooks, a project team manager at Teachers Insurance and Annuity Association-College Retirement Equities Fund in New York, said a merger "could be beneficial in the long term because it will leverage the intellectual property and capabilities of the two organizations."

Rouchou said Compaq Chairman Michael Capellas gave ITUG's 3,500 members "strong assurances" that the NonStop line would continue in remarks he made after the merger announcement.

A 10,000-member Compaq user group, Chicago-based Encompass, shared with ITUG in November its worries about the Unix road map for midrange servers, "which are really a bigger concern than NonStop Himalaya's future," Rouchou said.

HP officials say they plan to announce a product road map within 30 days of the close of the deal.

Parvez Erani, vice president of information management at St. Mary Medical Center in Long Beach, Calif., said the Alpha transition has forcing him to scramble to find replacements.

Merger Timeline

SEPT. 3, 2001 — Hewlett-Packard and Compaq propose merger.

DEC. 27, 2001 — Walter Hewlett files opposition to the merger with SEC.

JAN. 31, 2002 — European Commission approves merger.

MARCH 8, 2002 — U.S. Federal Trade Commission approves merger.

MARCH 19, 2002 — HP shareholders to vote.

MARCH 20, 2002 — Compaq shareholders to vote.

MORE THIS ISSUE

Amid merger uncertainty, HP customer Nestle picks IBM for a $500M deal. **Page 5.**

Many users said they have less specific worries or just don't know what to expect. Retail CIOs rolled their eyes when the merger topic arose in one discussion "because nobody knows what it will mean to them," said Cathy Hotka, vice president of the National Retail Federation in Washington.

"I don't have any major concerns about the deal, but I wouldn't acquire any of their products right now until they rationalize ... what products they end up keeping," said Jerry Hale, vice president of information services and CIO at Eastman Chemical Co. in Kingsport, Tenn., which uses Alpha servers.

Users don't seem to be concerned or distracted by the expensive and rancorous proxy campaign being waged primarily by HP CEO Carly Fiorina against dissident HP board member Walter Hewlett, son of HP co-founder William Hewlett. HP won some momentum in its bid last week with an endorsement by the Federal Trade Commission. In addition, Institutional Shareholder Services, a proxy-advisory firm, last week advised both HP and Compaq shareholders to approve the deal.

Surveys indicate that many users are taking a wait-and-see approach. Almost half of the 243 computer managers surveyed recently by Technology Business Research Inc. in Hampton, N.H., said they didn't anticipate any impact.

Officials at Compaq and HP said the surveys and comments they've heard from customers are mostly positive, although every user wants to know who their sales rep will be and what will happen to product lines. Hewlett didn't respond to a request for an interview.

"Customers are sticking with us," said Compaq spokesman Arch Currid.

"They understand it's going to be a big integration task," said Jim McDonnell, HP's vice president of marketing for business customers, who estimated that he has met personally with 200 representatives of large companies since the merger announcement. Many customers have asked whether service-level agreements will be kept after the merger, and they have been assured that they will, sometimes in writing, McDonnell said.

"The bottom line is that we have a heritage of taking care of customers, and that's what we'll do going forward," McDonnell said. "We won't leave them hanging without products or good solutions."

Dan Verton, Julia King, Tom Hoffman, Jennifer DiSabatino, Melissa Solomon and Ellen Fanning contributed to this story.

Quick Link For more about some of the long-term problems a merged HP/Compaq could face, visit:
www.computerworld.com/q?27852

OTHER LINKS:

– Special coverage of the proposed merger:
www.computerworld.com/q?a1650

– An HP/Compaq online discussion forum:
www.computerworld.com/q?a1020

– A chart detailing both firms' product lines:
www.computerworld.com/q?a1010

An Encompassing View of the Future

When asked if he had concerns about the HP/Compaq merger's potential impact on future product lines, technology direction and user support, **Joe Pollizzi**, president of Compaq user group Encompass, didn't hesitate. "The answer to all of those is yes," he said.

In an interview with *Computerworld*'s Dan Verton last week, Pollizzi said Compaq users will have concerns regardless of whether the merger goes through.

ENCOMPASS' Joe Pollizzi: "Very excited by the [merger's] possibilities."

Do you and other Compaq users want to see this merger happen? The feelings are mixed. There's a fairly large number who think this has a lot of potential to advance the state of the art. There's also a fair number – less than a majority – that are mostly concerned from a perspective of what it will do to existing IT investments. Those concerns are legitimate. I'm also very excited by the possibilities.

What is your main concern as a user? Clearly, the big issue is execution. It's very important for me to understand what the product road map and strategy is now. I need to have a clear vision so that I can make decisions and choices for the long run.

As a Compaq user, I want to know what the new road map is going to be. And I need to know that quickly. It has to be within six months. I have to have some sense of what I can start latching on to.

How hard is it to go through this again after the Compaq acquisition of Digital? It's like déjà vu. I need stability. While I thought I had it for a while, I was surprised by the decision last year to discontinue support for the Alpha. But the rationale made sense. Then, right on the heels of that comes this announcement.

What will the user reaction be if a clear product and technology road map doesn't emerge six months down the road? Every marriage has a honeymoon, and after the honeymoon the reality starts setting in. Wall Street is going to give them a very short honeymoon. The customer side will give them more time. But sooner or later, the honeymoon will end and the hard questions will be asked. You're not going to see people tossing things out the window. But [if a road map doesn't emerge quickly] when the next decision comes up, Compaq and HP [or the merged company] won't be in the game.

What will the reaction be among Compaq users if the merger doesn't go through? The Compaq customer base will still be optimistic. We still want to see how they're going to organize and tell us if they're in it for the long run. We're willing to let that play out.

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FRANK HAYES/FRANKLY SPEAKING

Readers Respond

READERS WRITE — and, as usual, they've got things to say. After the Jan. 7 column in which I suggested that backers of UCITA were like weasels — except that weasels don't really eat their young — one reader responded, "Actually, they have been known to. Weasels, as a part of the mink family, share this trait with marten, wolverine, river and land otters, and sea otters."

And, apparently, shortsighted vendors.

On Jan. 14, I wrote about a National Research Council report that pushed for mandatory reporting of security breaches. "I'm hopeful that you are not seriously advocating the legislation of software quality (security in particular)," one programmer wrote. "Quality is a function of the marketplace and it is not implemented through the police power of government."

But in most industries, quality is also a function of the threat of lawsuits over defective products. Why should software be exempt?

Not everyone agreed with me that fixing buffer overflow bugs is so easy, either [Jan. 21]. "Preventing buffer overflow is not quite as simple as you seem to suggest. Not only do you need to check the length on input, but you need to follow the flow of any user-supplied data *throughout* the program," another reader wrote. To demonstrate his point, he included a snippet of code that copies data from an 8K buffer to a 1K buffer.

He's right — although code that copies data from an 8K buffer to a 1K buffer without checking the data's length isn't so much a security hole as just plain poor programming.

A different reader pointed out another source of trouble: "If you use Windows COM and MFC libraries, you *assume* those overflow problems are taken care of *for* you. *WRONG!* Microsoft has *never* shipped libraries which properly check buffer limits. Why? As we all know, benchmarks are how libraries are sold. Windows libraries benchmark faster because they *don't do the checks!*"

Was I talking through my hat when I blamed Kmart's crash on its IT cutbacks [Jan. 28]? "You state that Kmart 'used newspaper ads instead of TV commercials.' However, I clearly remember Kmart commercials with Penny Marshall and Rosie O'Donnell. The rest of the article loses credibility almost immediately," this reader wrote. "There is to be found no hard statistics, instead it is peppered with sweeping generalizations in a drain of wholly unsubstantiated opinions."

Of course Kmart has TV commercials. But many business analysts have blamed Kmart's troubles in part on spending much less on TV and more on newspaper ads than what Wal-Mart or Target spent.

And if it makes you feel better, here are some hard numbers that got squeezed out of that column: Wal-Mart's IT budget grew from $450 million in 1995 to $550 million in 1997, while Kmart's shrank from $185 million to $130 million. No wonder Kmart couldn't compete.

My Feb. 18 column on girls and IT prompted lots of response, including a glum assessment from a longtime programmer: "Your comments made me mentally work through exactly why I discouraged my own daughter from following that path." She went on to point out that programmers aren't trained for the real world, there's no career path in programming, excellence is rarely rewarded, seniority is useless, and "that sucking sound you're hearing is the migration of specification documents from Silicon Valley to Asia." Ouch!

Finally, on Feb. 25, I posed questions that IT shops should be asking about their security. "You missed some pointed questions," a reader wrote. "Do your customer service representatives escalate reports of system vulnerabilities? If your staff gets such reports, do they investigate immediately, even if the reports have not been made public or are coming from brash 21-year-olds? It is important to listen to reports from all kinds of sources."

Which is why I keep reading my mail. ◗

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com.**

SHARK TANK

"MY E-MAIL is missing," remote user wails to help desk pilot fish. "The icon is there, but nothing happens when I click on it." Fish can't get the server to respond either, so he visits the site – and finds a bare spot where the server should be. "That old PC?" says user. "Since no one was using it, we packed it up and put it in storage. Was that important?"

U.S. ARMY pilot fish in West Germany is thrilled back in the late 1980s when his unit's first PCs arrive. "We wannabe technogeeks quickly unpack the PCs and set them up," fish says. Then he turns the first one on. "Up came a puff of smoke," fish reports. Must be a faulty machine, fish figures, so he tries a second PC. Same result. "After the smoke cleared, we discovered a little switch on the back of the PC set to 110 volts. Germany has a 220-volt electric grid. We started ordering replacement power supplies."

BACK WHEN tape drives were pricey, this pilot fish's client did a daily backup onto diskettes. "One day, the computer failed, and we had to go to the backups," fish says. "The diskettes were empty." Turns out that after carefully performing the backup each night, the client then got a jump on the next day's work by immediately formatting them all for the next day's backup.

ONE ICY DAY, IT consultant pilot fish visits a client site to make sure the new UPS is installed and running. It is. "Thinking about all the ice on the power lines, we're congratulating ourselves," says fish. "Then the lights go out, the UPS power alarm goes off and the server gets very quiet." The UPS is plugged into the wall socket and working, all right, says fish – "and the server is still plugged into the wall right beside it."

LOCAL SCHOOL district decides that its Internet access is only for educational purposes, so sysadmins block all "non-educational" sites. It's up to a teacher pilot fish to discover that among the blocked sites is . . . the Board of Education.

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